2016

The impact of coaches' training on implementation of the linked learning approach

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THE IMPACT OF COACHES' TRAINING ON IMPLEMENTATION OF THE LINKED LEARNING APPROACH

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Organizational Leadership

by

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October, 2016

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This dissertation, written by

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under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

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DEDICATION

My husband, A. Blaine McKinstry, III, who took up the slack, never complained, and encouraged me every step of the way. His personal experiences in the education system were one of my inspirations for this research. I could not have completed this journey without his love and support.

My daughters, Elizabeth E. McKinstry, who every day taught me to how to be self-confident, and trust myself through this process, and Christine Howell, who never judged but motivated me in her own quiet loving way.

My son-in-law, Jason C. Howell, who has shown me what it means to persevere and who believed I could cross the finish line.

My large family of siblings who showed me that we each learn differently, take varied paths, and define success on our own terms.

and

In loving memory of my mother, Dr. Elizabeth C. Menson, who was a role model for me not only as a woman but also a life-long learner. She always believed in me and my father, John Menson, who grew up in a different era but still encouraged women to pursue their goals and opportunities.

ACKNOWLEDGEMENTS

I would like to thank my dissertation chair, Dr. Reyna Garcia-Ramos for her patience, guidance and understanding of adult learning as she provided a supportive environment that I could learn and achieve in. I am honored to have been her student.

I would like to that Dr. Susan McDougal, Dr. Talma Shultz and Dr. June Schmieder-Ramirez, the amazing, intelligent and professional women of my committee, who work tirelessly every day for students of all backgrounds and ages.

I would like to thank Diane Walker, J.D, who was there to listen and do whatever was needed so I could finish this process. I am forever in her debt.

I would like to thank my staff who never let me down while I tried to balance work, life and school.

I would like to thank my colleagues of AVUHSD Educational Services, who collaborate with me as we work to address equity and provide learning opportunities for all students to be prepared for college and career.

Finally, I would like to thank the thousands of Linked Learning educators who understand why we need to transform our education system and those at Connect Ed who provide the tools that can help make the transformation.

ABSTRACT

The onset of the 21st century brought a new dynamic in the workforce fueled by societal changes and technological advancements. These forces helped to create the conditions that transformed the economy from the industrial age of routine labor to a knowledge age where creativity, collaboration, and critical thinking are now needed for success. In addition, the forecasts for this new global economy of the 21st century project that students will need not only new skillsets but also increased levels of education to succeed in the workplace. To prepare all students for postsecondary education and foster the growth of these new skillsets, education has to integrate reform efforts that address these changes. Yet, a challenge to transforming the education system of the industrial age to one that meets the needs of the 21st century is the two-track system that was created to align with an industrial age economy: one track for those who were to attend higher education and one for those who were to enter the workforce directly from high school. Linked Learning is an evidence-based reform effort that addresses these changes. It includes four elements: academic and technical coursework, student support systems, and work-based learning opportunities. Linked Learning prepares all students for postsecondary education options. Coaches' training has been identified as a strategy to aid in the implementation of the elements of Linked Learning and change instructional practice.

This quantitative dissertation research study examined the impact of the coaches' training on the implementation of Linked Learning approach. The study used a web-based survey to collect data from educators who had participated in the coaches' training to assess if the training was of value in implementing the core elements and beliefs of Linked Learning with their districts after they had completed the sessions and supporting assignments. Twenty-one educators from northern, central and southern California who had participated in the training

responded to 35 Likert items that were aligned to the seven intended coaches' outcomes. Participants were given the opportunity to add comments to each section. The results allowed for an assessment of the impact.

Chapter 1: Background of the Problem

The technological advances of the 21st century have brought competitive global economies that have necessitated major changes in the traditional work environment of the 20th century. The workplace has been disrupted by digital networks that have helped to shift the measurement of worker productivity from dependency on employee clock time in a centralized location to outcomes based in organizations that are more decentralized (Bollier, 2011). These changes have affected the knowledge and skillsets required for individuals to succeed in the 21st century workplace. Studies have documented that increased levels of education will be needed for the majority of jobs in 2020 (Carnevale, Smith, & Strohl, 2010). According to the Partnership for 21st Century Skills (2007), creativity, collaboration, communication, and critical thinking are additional essential skills in this new economy. Incorporating and assessing these new skillsets has put pressure on education agencies to revisit instruction, systems, and beliefs of the past century to ensure students are prepared for and can adapt to the changing workplace of the 21st century.

Linked Learning is a promising education reform approach that is aligned with these 21st century learning components of preparing students for postsecondary education and integrating new skillsets into instruction. This evidenced-based approach is built on four core components: rigorous academics, technical education, work-based learning, and support systems. The implementation of this approach in schools and districts requires a change in instructional practice to assure high quality learning and teaching that include student outcome-driven practice within career-themed pathways. In order to fully implement and sustain Linked Learning as a strategy to transform schools, the California Department of Education and the James Irvine Foundation have made a concerted effort to train teachers through professional development that

includes coaching. Within this model, trained facilitators/consultants train educators on Linked Learning and the use of coaching to facilitate change. Research has shown that coaching can promote a collaborative culture that fosters a sense of ownership among staff to improve teaching and learning (Aguilar, 2013). Agencies that have been at the forefront of the research and development of Linked Learning as an education reform strategy have invested in coaches' training to help change culture and instructional practice. Educators from districts that have received technical and financial assistance to implement the Linked Learning approach have had the opportunity to participate in and complete coaches' training. The training is organized into modules that focus on students' outcomes and transformative organizational changes that can lead to all students being both college and career ready for the 21st century economy.

The data and information from this research could add to the body of knowledge on Linked Learning and the use of coaching as a strategy for generating systemic change in education. This chapter will include background and rationales that support the use of Linked Learning as a potential approach to address the education mindset needed to prepare all students for both college and careers in the 21st century. The design of the public education system to align with the nation's economic and workforce needs will give context to the problem and purpose of the research in this study. Statistical information that draws inferences regarding an education and skills gap amongst underrepresented minority and low socioeconomic status students will lead to the research question being addressed. This chapter will also include a brief discussion of the methodology. Similar to many other industries, education has its own acronyms and definitions that become integrated into policy and organizational structure. The chapter will define key terms and assumptions for the reader. The limits of this study will also

be discussed. Within those limitations, the researcher will address her knowledge of and involvement with Linked Learning. The chapter will conclude with a brief summary.

Background/ Recent History

Since the establishment of the first free public high school in the later part of the 19th century, there has been an ongoing debate among stakeholders regarding the purpose of the American high school. In the 1880s, most free public high schools were established to serve those from the upper class of residents and were not open to all youths (Clarke, 2007). The purpose of these schools was to educate the elite students for the universities. Today, the public high school system is required to educate all students. However, as federal and state policy addressed equity with additional funding and services for minority students and those of low socioeconomic status, evidence remained of a two-track system: one for students who were identified as college bound and followed a rigorous standardized academic curriculum that was established by a committee of higher education representatives in 1893, and the other for students identified as not college bound that included general education/vocational courses to prepare for work and life. Thus, the public education system mirrored the inequities of society, with many schools serving a high concentration of minority students, offering fewer college preparatory courses and more traditional vocational courses to prepare for jobs (Hurn, 1978).

In the second half of the 20th century, concern regarding the inability of the nation's students to compete in a global economy due to low expectations and lack of academic rigor became paramount among the country's leaders. These issues were documented in the report titled *A Nation at Risk* (U.S. Department of Education, 1983) and are still at the center of education reform efforts of the 21st century. In addition, the technological advances in today's economy have changed the workplace to one that is powered by technology, fueled by

information, and driven by knowledge, causing the economy to move from the Industrial Age to the Knowledge Age. Many of the jobs for which vocational education classes prepared students in the Industrial Age have been eliminated and replaced with technology. To address this change, vocational education has evolved to Career Technical Education (CTE), which includes the scaffolding of relevant knowledge and skills within a specific industry sector pathway course sequence. The increased rigor within CTE has included curriculum alignment of academic content and model curriculum technical standards.

Problem Statement

The increased education requirements and new skillsets needed for the workforce of the 21st century have necessitated the public education system to incorporate education reform efforts that prepare all students to be successful in this new economy. Thus, this requires a change in instruction, assessment, and belief systems within schools and districts.

Statement of Purpose

The purpose of this study is to assess the impact of coaches' training as a model for professional development that supports the Linked Learning approach as an education reform strategy to prepare all students for both college and careers. The implementation of the four evidenced-based core components of Linked Learning within a career-themed pathway (rigorous academic college preparatory coursework, high level of technical coursework, work-based learning, and support services), coupled with the Linked Learning guiding principles, requires a shift in mindset regarding all students and instructional practice to prepare for college and careers. Coaching has been used in several education reform efforts to improve practice and increase student achievement. It has been identified as an effective strategy to change teaching and learning.

To implement Linked Learning as a strategy for change, attention, time, and resources have been allocated to coaches' training for educators who are in involved in Linked Learning efforts. Over several years approximately 200 educators have participated in this type of training.

Research Question/Significance

This study will address the research question, *Does the coaches' training given to education practitioners within Linked Learning districts impact the implementation of the Linked Learning approach?* In order to provide a foundational knowledge to this research question, the study will further describe coaching as a means to change instructional practice and will use the following definition of coaching from the literature review: "a collaborative, solution-focused, results oriented, systematic process that allows the coach to facilitate the enhancement of life experiences and activities allowing for self-directed learning, personal growth and achievement of goals" (Grant, 2001, p. 3). The coaches' training is broken down into seven modules to ensure the fidelity of implementing the Linked Learning approach. Each module has intended outcomes that have already been developed. The broad areas of these seven modules are: pathway quality, leadership and change, college and career, equity, collaboration and transformation, continuous improvement, and targeted services (see Figure 1).

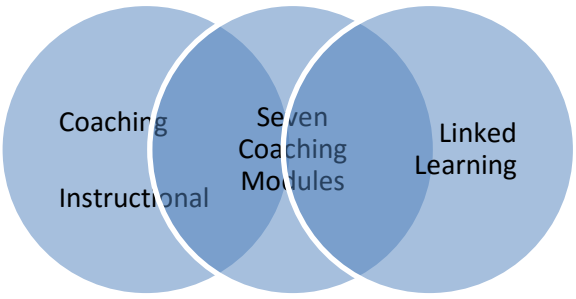

Figure 1. Coaching and linked learning relationship.

The study will seek to understand coaching by surveying education practitioners who have completed the Linked Learning coaches' training. Survey questions will be created based on the current intended outcomes for each module. A 5-point Likert scale will be used. Additionally, the study will examine how the Linked Learning coaches' training is operationalized within school districts.

Key Definitions

The field of education has a language unto itself, with definitions to key terms not necessarily common knowledge amongst those outside the education sector. Often these terms are interpreted and misunderstood by the public. Acronyms are also used frequently. In order to be consistent and allow for a more thorough comprehension of the research, the commonly used terms are defined subsequently, using criteria set by the United States Department of Education (USDE), the Linked Learning Alliance (LLA), the California Department of Education (CDE), and other agencies as referenced. The meaning of these terms will be discussed further in the context of the research.

- *At Risk Student*: Students who identify with a gender, age, and race and have socio/economic variables such as parent involvement, parent education level and family make-up that historically have statistically been shown to be barriers to school achievement.
- *Career Technical Education (CTE):* A program of study that involves a multiyear sequence of courses that integrates core academic knowledge with technical and occupational knowledge to provide students with a pathway to postsecondary education and careers (California Department of Education [CDE], 2014).

- *Career Pathway:* The National Career Pathways Network (n.d.) defines career pathway as a:

  > coherent, articulated sequence of rigorous academic and career/technical courses, commencing in the ninth grade and leading to an associate degree, baccalaureate degree and beyond, an industry recognized certificate, and/or licensure. The Career Pathway is developed, implemented, and maintained in partnership among secondary and postsecondary education, business, and employers. (para. 1)

- *Career Pathway (Linked Learning)*: A pathway is defined as a comprehensive 4-year program of study that integrates rigorous academics with high-quality technical core, a sequence of work-based learning experiences, and the supports needed for student success. Each pathway is organized around a major industry theme such as engineering, arts and media, finance and business, environmental design, or biomedicine and health (Stearns, 2014).
- *College Preparatory:* The successful completion with a grade of C or better of 15 yearlong approved courses of which 11 need to be completed prior to senior year. Courses include core academic, elective, arts and foreign language subjects. Fifteen courses meet the minimum requirement, although additional courses are recommended for applicants to be competitive (University of California Admissions, n.d.).
- *Industry Sector:* The state of California has identified 15 industries as being essential to California's economy. Each sector contains multiple career pathways in which to develop programs of study. Individual school districts and the region's corresponding colleges and businesses determine which sectors and careers can best serve students, industry, and community (State Center Consortium, n.d.).

- *Local educational agency*: A local educational agency (LEA) is:

  > a public board of education or other public authority legally constituted within a State for either administrative control or direction of, or to perform a service function for, public elementary schools or secondary schools in a city, county, township, school district, or other political subdivision of a State, or for a combination of school districts or counties that is recognized in a State as an administrative agency for its public elementary schools or secondary schools. (U.S. Department of Education, n.d., para. 12)

- *Personalized student supports:* Every student is supported by pathway staff, partners, and families. The pathway community of practice tailors learning experiences to students' individual developmental needs, skills, strengths, interests, and aspirations. Pathway staff, in consultation with families and service providers, identify and address the academic, personal, and social-emotional needs of every student so that she or he makes progress toward achieving personalized college and career goals and pathway student learning outcomes (ConnectEd, 2013).
- *Program of Study:* The incorporation and alignment of secondary and postsecondary education elements that include academic and CTE content in a coordinated, non-duplicative progression of courses. A program of study offers the opportunity for high school students to acquire postsecondary credits and leads to an industry certification, an associate's degree, or a bachelor's degree (CDE, 2013).
- *Socioeconomic status:* One's access to financial, social, cultural and human capital resources, traditionally included parental educational attainment, parental occupational

status, and household or family income, with appropriate adjustment for household or family composition (Cowan et al., 2012).

- *Underrepresented (Higher Education):*

  > "Underrepresented" in higher education refers to racial and ethnic populations that are disproportionately lower in number relative to their number in the general population, and "historically" means that this is a ten year or longer trend at a given school. (Sierra College, n.d., para. 1)

- *Work Based Learning:* Career exploration and preparation activities that culminate with internships and practicum experiences. Practicum experiences expand the range of strategies that include extended engagement between a student and industry partner and can include student-run enterprises, service, simulated, and integrated projects. Work based learning allows for academic and technical content to have application to real world experiences and prepare students for 21st century workforce (Linked Learning Alliance, n.d.b).

Many of the key terms referenced previously use similar verbiage within the definitions. Figure 2 shows the relationship of these terms within the context of career technical education and provides the structural components of a quality CTE program that have transformed from a vocational course to a comprehensive program. In addition, a Program of Study sample worksheet can be found in Appendix A.

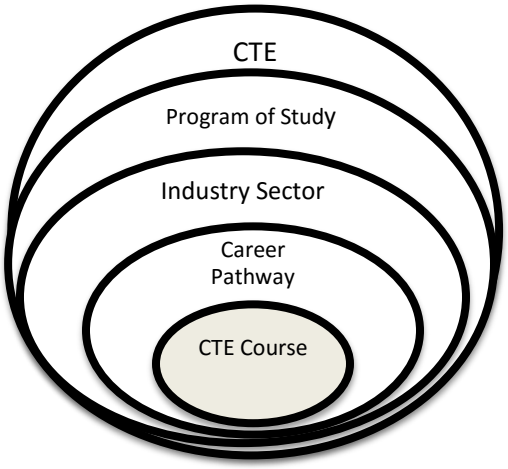

Figure 2. Components of a CTE.

Rationale for Study

The global economy of the 21st century demands an increased level of both knowledge and skills. This shift has made it imperative that the public education system addresses the gaps in achievement amongst students. Projections regarding the relationship among education, income, and economic growth highlight the need for all students to be both college and career ready. The challenge for many educators is that the system of a vocational track and college preparatory track is still perpetuated throughout secondary education. Too often, students drop out of high school or graduate from high school without the necessary foundation to be successful in college, career, and life. The increased demand for employees to solve problems in an ever-changing complex workforce system puts these students at more of a disadvantage than in the previous century. The Linked Learning approach addresses these new demands by preparing students for both college and career through changing learning environments. It is a comprehensive approach that integrates elements that have been demonstrated to engage students through rigorous academics, relevant technical skills, a continuum of work-based learning opportunities, and support systems that address barriers to academic and technical learning.

The implementation and sustainability of Linked Learning to improve learning environments with the goal of all students graduating with a full range of postsecondary options is relatively new to secondary education reform efforts. Funding and support for this comprehensive approach began in 2008 through a competitive grant application. Since then, Linked Learning has expanded throughout California and other states. This study will provide evidence regarding the value of a professional development framework that includes coaching to integrate and operationalize Linked Learning as a strategy to address the achievement gap and prepare all students for college and careers. In addition, there is still limited research on a broader education platform in the use of coaching to improve instructional practice. The information garnered from this research could be beneficial in analyzing the return on investment of the Linked Learning coaches' training, the fidelity of implementation of Linked Learning, and identification of variables that could have an impact on the use of this approach. The study will add to the body of knowledge of education reform strategies, professional development, coaching, and college and career readiness.

Assumptions of Study

The assumptions of this study include the following:

1. The researcher will ensure the anonymity and confidentiality of the participants to allow for honest answers to survey questions.
2. The participants will have a thorough understanding of Linked Learning that allows the researcher to gather relevant information.
3. The participants will have been involved in the implementation of Linked Learning since they have completed coaches' training for Linked Learning.

4. The participants will have an interest in responding to the survey and will do so in a timely manner.
5. The facilitators of the coaches' training will aid in the dissemination of the survey to a broad base of participants who have completed the coaches' training.

Limitations of the Study

The researcher acknowledges that the following areas could be limitations of the study :

1. A limited number of responses to the survey that would result in a small population despite the data collection processes.
2. The researcher's dependence on the coaching facilitators to disseminate the information could result in limited responses.
3. The attrition rate of participants that no longer work with Linked Learning could result in a limited number of responses.
4. The responses will not reflect a diverse group of participants, which would result in research findings being reflective of a more homogenous group.
5. The responses may come from those who had a favorable experience with the coaches' training.
6. The researcher has been involved in and has a strong understanding of the Linked Learning process.
7. The minor modifications based on feedback from trainings could affect the responses.

Organization of Study

This study is organized into five chapters. The first chapter provides the foundation for the study, including the purpose, rationale, research question, assumptions, and limitations. Key terms are also defined in the first chapter to provide further comprehension throughout the study.

The second chapter provides a literature review within the three key areas that are relevant to the study: college and career readiness, Linked Learning, and coaching. The research methods used, design of the research, data collection, and population are the contents of Chapter 3. The fourth chapter discusses the findings of the study as they relate to the research question. A summary of the research, opportunities, recommendations for further research, and conclusions of the study are found in Chapter 5.

Chapter 2: Literature Review

Overview

The objective of this literature review is to allow for a deeper understanding of the increased importance of education reform measures that address the need for all students to be both college and career ready. The rapidly changing global economy of the 21st century has brought with it a demand for all workers to have a new skill set that encompasses higher levels of education and training. Yet, there is still evidence of achievement and opportunity gaps specifically for minority and/or at risk students. If these challenges are not addressed within the education reform movements, these students will not be prepared with the increased level of knowledge and skill sets to compete and flourish in this new economy.

To build a foundational knowledge and understanding of this issue as a basis for this research study, the central theme of this literature review will be college and career readiness. The organization of the chapter will first establish the significance of and rationale for college and career preparation for all students and its relationship to the new Common Core State Standards (CCSS). Within that context, the four guiding principles of the education reform Linked Learning approach (prepares all students to succeed in college, career, and life; prepares all students for a full range of postsecondary options; connects academics to real world applications; and improves student engagement) will be addressed. Further support for the rationale to implement the four core components of Linked Learning (academic coursework, technical coursework, support services, and work-based learning) will be offered. The use of this approach will aid in the understanding of school reform initiatives that address both college and career by providing a platform for instruction that includes both rigor and relevance. To implement change within the education environment, one must investigate effective practices

that have had a positive impact on changing organizational culture and instruction. The coaching model strategy has been used for positive transformation in both the private and public sectors. Thus, literature that addresses coaching, its effectiveness, and culture will be examined within the context of this chapter. Figure 3 reflects the chapter organization and gives an overview of the literature review.

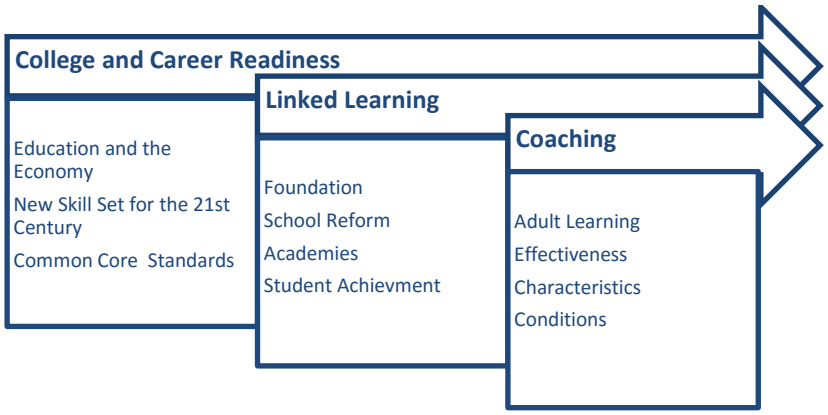

Figure 3. Chapter and literature review organization.

The chapter will conclude by summarizing the relevance of the three contextual themes (college and career readiness, Linked Learning approach, and coaching) as they align to the central theme of creating learning environments that prepare all students to achieve their education goals so they will be successful in the 21st century workforce. These goals include even the most at-risk students meeting the requirements to pursue higher education and being prepared to pursue promising career opportunities.

Education and the Economy

Historically, the structure of the education system of the United States has been driven by the nation's economic needs and social issues. For centuries, education was based on observing and mastering the occupation of one's family while living in areas designated for a specific community and social class. Youths worked on farms or learned a trade through apprenticeships

under the direction of skilled mentors. Higher education was reserved for a select group of students who were destined for the university due to their social status and gender. Pursuit of higher education prepared this select group for bureaucratic or religious positions where literacy and language fluency were requirements (Tyack & Cuban, 1995).

The evolution of the second phase of the Industrial Revolution in the early 20th century was brought on by advancements in utilities and manufacturing processes, specifically in the transportation industry. Henry Ford's vision to make the automobile affordable to the general public paved the way for an era of mass production and created demand for workers who were assigned short, monotonous, and specialized tasks on an assembly line. Assembly line work in manufacturing plants became instrumental in transforming the job market, from the majority of people being involved in agriculture to a demand for manufacturing assembly line workers who could meet the needs of this new economy (Folsom, 1998). Jobs became plentiful with this shift, and the labor market continued to expand to meet the increased need for goods. An influx of immigrants entered the United States for these job opportunities, further impacting where people lived and worked. A shift in population from rural to urban areas occurred, as cities housed both the workers and industrial plants for this new era of manufacturing. This economic growth resulted in a population explosion, changing demographics, and increased efficiency of production work. Although jobs were available, living and factory conditions in these urban areas were poor and schools were challenged to educate the influx of children from the families of industrial workers (Clarke, 2007).

These circumstances not only put new pressures on the education system but also created a climate for philosophical differences on the purpose of education. An expanding diverse population impacted compulsory education to meet the needs of a growing capitalistic society.

This transition created challenges of both classroom size and delivery of instruction. Schools were tasked to provide an environment that prepared students for entry-level employment that could allow for advancement to new middle class management positions that did not require higher education. For both entry level and mid-management positions, it was important that students learn obedience and punctuality to prepare them for work in large organizations that depended on these traits to run efficiently. Furthermore, schools were tasked to pacify and control a lower class of students, often immigrants, transforming them into efficient workers who could meet the demands of corporate capitalism. In addition, the need still existed for agricultural workers to meet the consumption needs of a growing population (Butts, 1978). Thus, lower socioeconomic status students were steered away from an academic education and tracked into vocational training for the masses that prepared them for jobs in manufacturing, agriculture, and home economics (Garrison, 1999).

Two philosophical views on the mission of education continued to emerge and impact reform efforts throughout the 20th century. The traditionalist view replicated the factory model of education, which focused on setting up schools like factories to accommodate the masses of industrialized society. The teacher delivered knowledge through repetitive rote instruction, the curriculum was subject centered, and mastery was determined by memorization of facts. In contrast, John Dewey, a renowned educator and theorist of the 20th century, supported a more progressive view of education. He maintained that the education system should focus on the development of students' social power and insight, as it prepared them for lifelong learning through differentiating instruction for learning within and outside the classroom (Garrison, 1999). Others like Dewey identified two important elements in progressive education. The first element states that each student is an individual and should be recognized for his/her own ideas,

interests, and abilities, as well as be given education opportunities that foster his/her creativity, artistry, and emotion. The second element was the development of problem solving intelligence and social interactions that would allow students to participate in a democratic society for the common good (Westbrook, 1993).

These two perspectives on education continued to impact public education systems throughout the 20th century. The importance of meeting the needs of the economy through workforce training delivered via vocational education instruction was instrumental in providing separate federal funding for coursework that was centered on occupational training for students. Supported by a strong coalition of organizations and legislators, the Smith Hughes Act was passed in 1917. The act created federal financial support to vocational education programs that prepared students for work in agriculture, industrial trades, and home economics (Partnership for 21st Century Skills [P21], n.d., 2007). This categorical funding source specifically for vocational education created an accountability system with metrics that aligned to preparing students for employment and not for college. Although revisions have been made to this funding stream to align with changes in contemporary workforce requirements, revenue designated for separate vocational instruction still exists today. However, an unintended consequence of a federal revenue stream to be used only for vocational education was the government support of differentiation of secondary education curriculum into two distinct paths: one for those identified as college bound and one for those who were identified for the workforce (Conley, 2007). Students were tracked in vocational classes based on factors determined by the educational institution and not necessarily their academic ability or potential (Clarke, 2007). Most often these students were those of lower socioeconomic status or the working poor (Arum & Shavit, 1995).

21st Century

Today, the technological advances in the competitive 21st century global economy have brought with them the need for learning that is focused on a new skill set. In *Flat World of Education,* Linda Darling-Hammond (2010) stressed the importance for educators "to prepare students with a strong foundation that epitomizes the nature of work and allows for adaption in a rapidly changing work environment" (p. 2). This skill set fosters creativity and innovation and requires workers to be able to do the following:

- Design, evaluate, and manage one's work;
- Frame, investigate, and solve problems using a variety of resources;
- Collaborate strategically with others;
- Communicate effectively in many forms;
- Find, analyze, and use information for many purposes; and
- Develop new products and ideas.

In addition, in comparison to the jobs of the prior century, the jobs of the 21st century require advanced education and training beyond high school. Automation, robotics, and other advanced technological solutions have replaced many of the mass production jobs previously done by humans. According to the Georgetown Center on Education and the Workforce, approximately 36% of all jobs in 2020 will require a high school diploma or less, as compared to 62% of all jobs in 1972 (Carnevale et al., 2010).

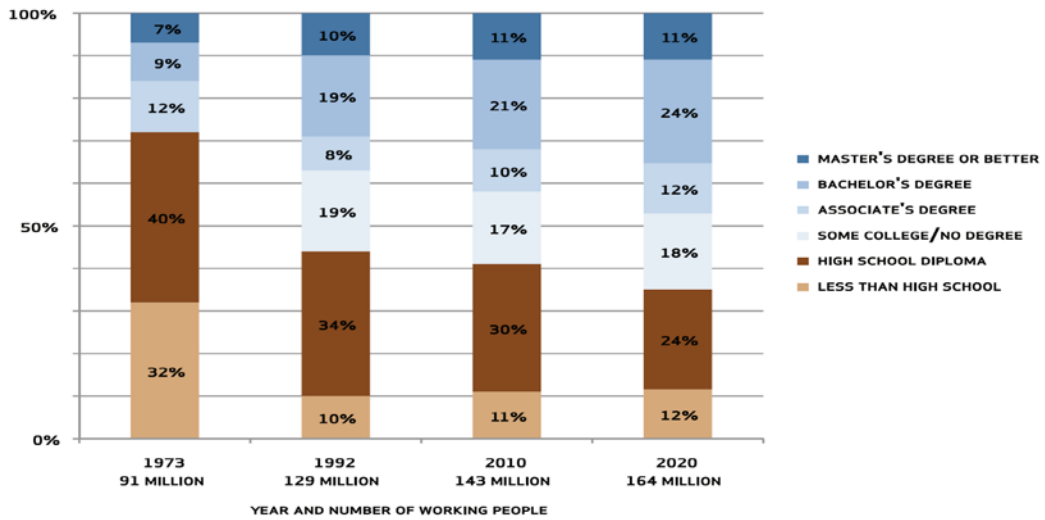

Figure 4. Educational demand for jobs various years. Reprinted from *Recovery: Job Growth and Education Requirements through 2020 (Executive Summary),* by A. Carnevale, N. Smith, & J. Strohl, 2012, p. 15 , retrieved from https://cew.georgetown.edu/wp-content/uploads/2014/11 /Recovery2020.ES_.Web_.pdf. Copyright 2012 by Georgetown Center on Education and the Workforce Analysis. Reprinted with permission.

By the year 2030, advanced economies such as the United States will need to increase the pace of those earning a college degree, especially in technical subject areas such as engineering and science (Dobbs et al., 2012). These data reflect the transition of 21st century workplace requirements, leading to a demand for job applicants that have both education beyond high school and a high level of technical skill (Carnevale et al., 2010).

Furthermore, even with school improvement initiatives, thousands of young people drop out of school each year, leaving them unprepared to be successful in this new economy. Large urban poor school districts persistently have high dropout rates due to many factors (MacIver & MacIver, 2009). From 2011-2013, the California graduation rate ranked in the bottom one-third of the nation and below the national average (Ed Facts, 2015). With businesses requiring an increased level of skill and knowledge, the challenges for these students to compete within the job market will continue to increase (Alliance for Excellent Education, 2013). A recent McKinsey report concluded that the inequities within the U.S. education system impose a

negative economic impact on the nation. The new economy of the 21st century depends on an education system that prepares all students for opportunities to achieve both rigorous college and career ready standards (Stuart, 1999). Routine jobs are being replaced with those that require abstract reasoning, knowledge management, and personal services (Koenig, 2011).

The urgency to educate students for this new economy is summarized in the report *Tough Choices or Tough Times* (National Center on Education and the Economy, 2008), which was generated by the New Commission on the Skills of the American Workforce. The commission—made up of business leaders, governors, school chancellors, and former secretaries of both labor and education—compiled the report as a follow up to a previous report from 1983, *A Nation at Risk.* The 1983 report expressed strong criticism of the education system in the last decades of the 20th century. One of the intentions of *A Nation at Risk* was to highlight the imbalance of the education system given the realities of the economy. It served as an impetus for changes in instruction and expectations throughout public education. At that time there was a strong concern amongst stakeholders that the education system was failing. Declining test scores and indicators of low student motivation were of concern to business, education, and government leaders. A major prediction in *A Nation at Risk* was that without significant reform, students in the United States education system would not be competitive in the emergent global marketplace, which was advancing rapidly at the end of the 20th century (U.S. Department of Education, 1983). Scores on international assessment tests of reading and math placed U.S. students significantly below those in other countries (Dillow & Snyder, 2015). Due to the lack of improvement and stagnation of test scores in academic assessments over 2 decades coupled with the competitiveness of global marketplace, additional concerns surfaced in *Tough Choices or Tough Times.* This most recent report referenced the importance of all students needing a

strong foundation of basic academic skills, but substantiated that this alone will not lead to economic and job security. It further stated that these basic academic skills are essential, but the current and future job market will demand more and have less need for routine lower level tasks. Advancements in technology have created a work environment that depends less on humans to complete the entry-level jobs for which vocational education prepared students. Thus, the report concluded that it is imperative for high school graduates to be prepared for both college and career. The new job market of this century requires higher levels of education, which fosters the application of a broad spectrum and depth of students' knowledge rather than narrow units of specific content. Workers of the 21st century will have to be able to recognize what kind of information matters, why it matters, and how it connects and applies to other information (Silva, 2008). These findings are further supported by authors who are addressing the market changes in the workforce. In his book *A Whole New Mind*, Daniel Pink (2005) credited the changes to three factors: Asia, abundance, and automation. He explained that during the 21st century there has been a shift from the Information Age to the Conceptual Age that requires individuals to not only define and master the skills of the previous era but also to:

> Create artistic and emotional beauty, to detect patterns and opportunities, to craft a satisfying narrative, and to combine seemingly unrelated ideas into a novel invention to empathize, to understand the subtleties of human interaction, to find joy in one's self and elicit it in others. (p. 51)

The impetus behind this change is the need to develop products that move beyond function and are often customized for individuals. Pink challenges schools to foster opportunities to prepare students for a workplace not of the past but of the future: one that values innovation, imagination, creativity, communication, and emotional intelligence.

A supplementary challenge for the education system to move from the industrialized society model to one of the 21st century is that many employers place the responsibility for career/workforce preparation on the public education system. According to a report published by a consortium representing business and education, an overwhelming majority, 75.4%, of the 400 employers surveyed stated that the K-12 school system should be tasked with the highest level of responsibility to teach the skills and knowledge for workforce readiness. Among those employers surveyed, over one fourth of them will decrease the number of applicants hired with only a high school diploma, whereas almost 60% will increase the hiring of 4-year college graduates. In addition, when rating new employees on the workplace readiness report card, they found high school graduates to be deficient in the basic skills of writing, mathematics, and reading comprehension. Furthermore, these new employees were also deficient in 21st century skills, critical thinking, problem solving, work ethics, and professionalism. The areas in which high school graduates were rated as adequate were applied skills of information technology, diversity, teamwork, and collaboration. In contrast, 2 and 4-year college graduates were better prepared for entry level jobs but were still deficient in oral and written communication and leadership (Casner-Lotto & Barrington, 2006).

Given these changes in workforce needs and the necessary alignment of the United States education system to the economic realities and global competitiveness of the 21st century, there is an urgent need to reform education. The former Secretary of Education, Arne Duncan, emphasized this in his 2010 address:

> In this global economy the line between domestic and international issues is increasingly blurred with the world's economies, societies and people interconnected as never before. In the United States, we speak frequently about competition. It's the sprit of competition

> that drives us as a country to do better. Americans understand that the future of our country's long term economic prospects depends on the education of our people. They know we have to educate our way to a better economy. (Duncan, 2010, par. 8)

College and Career Ready

The increased level of skills and knowledge needed for this century's workforce has made education reform efforts a priority. The intent of these efforts is to ensure all students who graduate from high school are prepared for both college and career. As referenced previously, this is a prerequisite to be successful in today's rapidly changing workforce and that of the future.

There are many indicators that the United States continues to fall behind in meeting this goal. The challenge for those preparing students for this transformation is the differentiation of perspectives on the definitions, outcomes, and assessments associated with college and career readiness (Hanover Research, 2011). Many researchers agree that college and career readiness should include the elements of David Conley's (2010) definition. He described a college and career ready student as one who can complete a postsecondary degree program or a high quality certificate program that enables him/her to enter a career pathway with potential future advancement without the need for remedial or developmental coursework (Conley, 2010). Yet, high schools in California often measure college preparation only based on the number of A-G courses taken, which are courses that have been submitted and approved by the University of California /California State University (UC/CSU) system as meeting the requirements for application to the state's university system (Betts, Zau, & Bachofer, 2013). Both college entrance assessments systems, SAT and ACT, have created college and career readiness measures as indicators of student readiness for college level work. ACT uses benchmark scores

to measure college success of obtaining a B or higher or a 75% chance of obtaining a C or higher in a first year credit bearing college course (ACT, 2014). In 2014, only one quarter of students who completed college preparatory courses met all of the benchmark scores and almost one-third of students did not meet any. The SAT also sets a benchmark score by using logistic regression to determine the SAT score of 1550 for the composite SAT test, which includes critical reading, math, and writing (Hanover Research, 2011). From the time frame 2009-2014, there was no significant improvement in scores for students taking the SAT that met this standard; the level stayed constant at 43% (College Board, 2014). In addition, the National Center for Education Statistics reported that 20% of incoming freshmen in 2013 needed remediation in English and/or math. The 2013 data from California indicated that 30% of students needed remediation with over 50% of African American Students and 40% of Latino students being placed in remedial classes (California State University [CSU], 2014).

These data reflect the disparity between high school college preparatory curriculum and preparation for higher education that leads to degree completion based on standardized national assessments. Other studies point out the need for supplemental skill sets in addition to academic knowledge. The majority of both English and mathematics teachers in the college and career readiness study, *MetLife Survey of the American Teacher 2010,* identified the ability to write coherently and persuasively as an absolute skill needed for all students to be college and career ready. In contrast, less than half the teachers rated higher-level math skills as important. In the same study, close to two-thirds of teachers, parents, and business executives highlighted knowledge of other cultures and international issues as being absolutely essential for college and career preparation. This mixed methods study on college and career readiness surveyed a national sampling of 1,000 middle and high school teachers, 2,002 middle and high school

students, 580 parents, and 301 executives from Fortune 500 companies. In addition, they held online strategy sessions with education leaders. The study indicated that college and career preparation should be an essential piece of the education system, but the degree to which it is prioritized differs among stakeholder groups. Key points from this study are significant to the continued efforts of preparing students for both college and career, as the findings concluded that postsecondary education is necessary for career opportunities. The majority of business leaders (77%) and students (84%) agreed that there will be few or no opportunities for those who do not complete some level of education beyond high school. Although garnering a slightly lower percentage of agreement (76%), even students who did not expect to go to college agreed with this statement, reflecting that they understood the value of higher education. The data recognize the importance of higher education amongst stakeholders. For parents, the number one priority for schools is to ensure every student is college and career ready. Over 77% of parents surveyed agreed with this statement. Out of this group, parents who did not have a college degree indicated an even stronger preference for this priority than parents who held college degrees. Additional data from the study reflected the priority of preparing all students for college and career, especially those students in high need and urban schools. The teachers in these schools ranked this as a higher priority than those who did not teach in this setting.

Similar data from a 2010 Hart Research Associates study, *Raising the Bar: Employers Views on College Learning in the Wake of the Economic Downturn*, reflected that employers believe higher education can prepare students who graduate from degree programs for long-term career success. They cited that specifically in an economic downturn, the shift is to hire college graduates who have a broader scope of practice and possess the ability to transfer knowledge. However, employers recognize the gaps in college graduates' knowledge of workforce

expectations. These industry representatives were most supportive of higher education practices that teach a depth and application of knowledge in a content area with research and evidenced-based analysis. Although the data from the participants in this study recognized college as preparing students for long-term career success, they wanted colleges to put more emphasis on the following: knowledge of human culture and the physical and natural world, intellectual and practical skills, personal and social responsibility, and integrative learning.

Common Core

The need to address the increased workforce demands of the national economy has aided in the creation and implementation of a new set of standards to assess students' knowledge. These assessments are referred to as the Common Core State Standards (CCSS) and are anchored in college and career readiness frameworks developed through research and current practice (Common Core State Standard Initiative [CCSSI], n.d.). The implementation of CCSS in the classroom to drive instructional practice is intended to increase the likelihood that all students will graduate with the foundational knowledge needed to be successful in college and careers (Barnett & Fay, 2013). The development of CCSS emerged from a collaborative effort between the National Governors Association and the Council of Chief State School Officers (CCSSI, n.d.). These new national standards were developed for two primary reasons, the first being to address the disparity of the previous state standards established to comply with the accountability measures of the initial standards movement in the No Child Left Behind Act of 2002 (NCLB). The NCLB federal legislation was enacted to ensure evaluative measures and progress for all students in working toward and meeting academic proficiency. NCLB required each state to determine a standard of academic achievement but did not dictate the level of the standard or what constituted mastery. A wide range of variance in testing among states was an unintended

consequence of this new system of accountability. The federal government was not able ensure all students in the United States were prepared with same level of skills and knowledge to compete in the international marketplace (Barnett & Fay, 2013). The requirements of *high stakes testing* due to compliance with NCLB was controversial among many policymakers and educators who viewed these tests as narrow in focus. They believed the tests and accountability created learning environments that did not accurately reflect and assess students' knowledge of content and career ready proficiency. Many were concerned about a *teach to the test* mentality among district stakeholders due to school rankings and the possibility of sanctions. Increased accountability came with posting of test scores for the public as they initiated standardized tests that measured student proficiency (Hout & Elliott, 2011). Furthermore, opponents referenced the potential for an increased dropout rate when undue stress on students and teachers emerged as a result of high stakes testing (Johnson & Johnson, 2009). Supporters of the NCLB assessments agreed that standardized tests provided an additional means of evaluating student achievement in high school and readiness to be successful beyond graduation. The tests were a start in addressing the inequities of low expectations for minority students in urban and poor neighborhoods. Supporters were in favor of revenue tied to accountability and wanted an increased level of transparency regarding student achievement specifically for at-risk students (Dee, Jacob, Hoxby, & Ladd, 2010).

The second reason a new set of standards was formulated was to address the assessment of college and career readiness that went beyond memorization and multiple choice answers to tests that integrated critical thinking, problem solving, and digital literacy. Many business and education leaders identified these skills as essential when measuring students' adaptability to the 21st century workplace and viewed these standards as a step in overhauling education that had

been too slow to change and adapt (Williams, 2014). These leaders voiced the same concerns that were highlighted in the previous *Nation at Risk* and *Tough Times, Tough Choices* reports, both of which indicated that students from the United States were not prepared to compete with their international counterparts. The reports were in consensus that intellectual behaviors such as critical thinking, creativity, and problem solving had been lacking in the previous NCLB standards requirements that did not allow for advancement of higher level thinking (Bidwell, 2014). The new CCSS are built upon best practices, evidence-based, and internationally benchmarked, all of which are to ensuring they address the global economy's competitiveness and future workplace trends. To ensure the standards accurately reflected the knowledge and skill level students must possess in order to be successful in postsecondary education, a strategic developmental process was implemented over several years. The timeline included ongoing input and review from content experts including teachers, higher education representatives, and leaders within both the workforce and education communities (CCSSI, n.d.).

Table 1 presents the key shifts of the content standards from the NCLB era towards incorporating 21st century skills and both college and career readiness standards (CCSSI, n.d.).

Table 1

Standards Shifts in ELA and Math

English Language Arts	Mathematics
Regular practice of complex text and academic language	Greater focus on fewer topics
Reading, writing and speaking grounded in evidence from texts both literary and informational	Rigor: conceptual understanding, procedural shifts in fluency and application with equal intensity
Building knowledge through content rich non-fiction	Coherence: linking topics across grades

Similar to the state standards that were initiated through NCLB, the CCSS have been controversial. Several states that originally adopted CCSS have since repealed them due to

political pressure. Conservatives have been concerned that national standards lead to increased federal control and monitoring without local input. The American Federation of Teachers deemed CCSS an attempt to set up public education to fail (Bidwell, 2014). However, the United States Chamber of Commerce has supported the standards from the onset, stating that they will help address the lack of skilled and educated workers (Williams, 2014). Debate has also been centered on the originators and supporters of CCSS. Bill Gates, founder of Microsoft and a proponent of education reform, has been involved with CCSS from the onset. His participation and leadership along with other corporate representatives in the reform efforts of the new standards has created distrust amongst opponents who are concerned with the privatization of public education (Layton, 2014). Despite the opposing camps and decline in the initial support of CCSS, most are in broad agreement regarding the objectives of the new standards to better prepare all students for both college and career (Williams, 2014).

Linked Learning

The Linked Learning approach has been identified as an education reform strategy that implements CCSS within the context of an identified career-themed pathway to provide both rigor and relevance for students. This comprehensive and strategic approach has been shown to offer promising results of student engagement and strengthening student/teacher relationships, which can be significant for students who are at risk (Almond & Miller, 2014). The education reform approach of Linked Learning has identified four evidence-based core components within a set of guiding principles that are essential to assure that all students, regardless of background, are prepared for college, career, and life (Linked Learning Alliance, n.d.a). These components are:

- Rigorous academic coursework: prepares students to take credit bearing college level courses and be university admissible upon graduation from high school, maximizes articulation between high school and postsecondary programs of study, and facilitates and accelerate completion of postsecondary credentials.
- Challenging technical training: embedded through a sequence of classes and integrated with academic content standards, aligned with career opportunities in a variety of high-need, high skilled occupations; includes the opportunity for stackable certifications, credentials, or degrees where relevant.
- Work-based learning: sequences that reach from middle school career awareness and exploration into postsecondary training and education; provides opportunities to apply core academic content and technical training while developing skills, competencies and dispositions, that are critical to workplace success.
- Comprehensive support: services embedded as central components of a program of study; addresses unique needs of student and includes academic socioeconomic supports to ensure access, opportunity, and success.

These guiding principles prepare students for success in college, career, and life, including a full range of post-graduation opportunities. They also connect academics to real world applications and improve student engagement.

The Linked Learning approach in schools and districts expanded on the career academy model. Historically, the academy model had shown success in assisting high school students, specifically those at risk, at both national and state levels. The first career academy started in 1969 in Philadelphia, a large urban area with a high minority population. The goal of this academy was to prevent students, the majority of whom were African-American, from dropping

out of high school by offering relevant curriculum that was focused on vocational education and job preparation skills. The academy in Philadelphia was a partnership with a major utility company that offered job training and placement in conjunction with academic coursework (Burnett, 1992). The mission was to educate and employ a large minority population that typically had been disengaged or unsuccessful in school. Due to the program's effectiveness in decreasing the dropout rate for these students, the model was implemented in other regions of the country (Brand, 2009). The success of the original academies was evident in improved student performance and preparation. Particularly encouraging was the progress made by at-risk students who were targeted for placement in the academies. Since then, career academics have been shown to affect factors that lead to positive academic outcomes such as attendance, earned credits, graduation rates, college attendance, and labor market outcomes when evaluated against a comparison group (Brand, 2009). Because it was a proven model of retaining and engaging students, the program model continued to grow and expand across the nation (Elliott, Hanser, & Gilroy, 2002). Furthermore, it was found that academies had proven economic benefits for students. An analysis of the long-term impact on academy students found that males in an academy setting had a 17% increase in annual earnings over the 8 years length of the study compared to the control group. This meant a gain of $3,731 for this group of males, which equated to nearly $30,000 over the 8 years of the study. This finding is important because young men as a group had experienced a decline in earnings during this time period. Another key finding related to the labor market and economy indicated that the population of students who had been in career academies had a higher percentage of young adults living independently with a spouse and children than those who were not in academies (Kemple & Wilner, 2008). Although this MDRC study of the academies appeared to have an influence on wages and jobs it

did not seem that there was a difference of impact on the students in academies preparation for college. Both non-academy and academy students had the same rate of preparation. Another significant finding of the academy success model addressing graduate rates can be found in a study of Nashville Public Schools, which implemented a wall-to-wall academy model in each of their high schools in 2010. From then to 2013, the graduation rate has improved from 57.4% to 74.6% (Charlton, Lepley, & Workman, 2013).

In California, the California Partnership Academy (CPA) is the most common and recognized academy program model. CPAs originated in 1984 with the intent to prepare students for both college and career through the development of small learning communities. The program was identified as highly effective by California legislators who validated the model by incorporating it into the state's Education Code in the early 1990s. The Education Code, section 54960-54696, established separate categorical funding to aid in the expansion, development, and implementation of the program. The requirement of matching funds from the school districts to support the academies would bolster their sustainability as a program to address the achievement gap for at risk students (CDE, 2014).

Similar to the national academy program model, the CPA small learning communities model focuses on career themes within specific industry sectors that would meet the needs of a highly skilled workforce of the 21st century. Depending on the size of the school and academy, in CPA programs, 150 to 400 students are cohorted within a larger school, allowing the same group of students at each grade level to take the academic and technical classes together. The California Department of Education (CDE) provides oversight to ensure districts abide by Education Code requirements, student indicators are met, and funds are allocated. A minimum of 50% of students in a CPA must be identified as at risk in a least three of six areas: low grade

point average, low socioeconomic status, low motivation, behind in credits, low test scores, and irregular attendance (CDE, 2014). Since their inception in the early 1980s, CPAs have shown that students in grades 10-12 have outperformed similar students who are not in CPAs. The research data of the first CPA indicated that academy students had better attendance, obtained more credits, had higher grades, and were more likely to have graduated on time as compared to their peers (Reller, 1984). More recent data from the California Academy Support Network at University of California Berkeley revealed that students in CPAs demonstrate consistent progress in achievement. These students have outpaced the state's graduation rate by 10 percentage points. In addition, 57% of students in CPAs completed the A-G requirements for admission into the UC/CSU system compared to the state average of 36% (Dayton, Hamilton-Hester, & Stern, 2011). These data were significant to the establishment of programs that provide both rigor and relevance to address the needs of at risk students in preparing them for college and career. The results that showed positive college preparation data and retention for students in academies was one of the rationales for the James Irvine Foundation to pursue further the potential of an approach that connected and engaged students.

James Irvine established his foundation with the broad mission to "promote the general well-being of the citizens and residents of California" (The James Irvine Foundation, n.d., para. 1). This overarching mission of the foundation helped to identify and build upon the successful strategies within the academy programs that addressed the achievement gap. The James Irvine Foundation started ConnectEd: The California Center for College and Career to advance the establishment and growth of multiple pathways that prepared students for both college and careers throughout the state. Similar to the academies, multiple pathways integrate rigorous core academics with relevant technical curriculum within California's 15 identified

industry sectors. ConnectEd's early work in this area concentrated on providing a more thorough understanding of the key elements of successful implementation of technical and academic content that prepared students for both college and careers. Sixteen schools sites were identified as demonstration sites to study because they had exhibited best practices in one or all four of the elements of Linked Learning within their established academies. The MPR Associates study of these demonstration sites analyzed student outcome data. Within these data, standardized test scores were compared to the state scores and disaggregated by race and ethnicity. The indicator data showed that students in the demonstration sites performed better on the California High School Exit Exam than those statewide. The California Standards Test (CST) data yielded similar test scores for students both in the demonstration site and statewide. Furthermore, qualitative data collected from students and teachers in these programs revealed that both groups viewed the learning environments within the academies as positive due to the favorable attitudes and behaviors exhibited by academy students (Farr et al., 2009).

The quantitative and qualitative data from the initial study of pathways coupled with the additional research of the national and statewide academy data led the James Irvine Foundation to provide substantial funding through a competitive grant application process. The grants developed by ConnectEd to launch district wide initiatives that embodied the tenets of multiple pathways later evolved into the Linked Learning approach. These grants were intended to aid districts as they embarked on a strategic planning process that would lead to the implementation of Linked Learning as a means of promoting education reform efforts that prepared all students for both college and career (ConnectEd, 2014). As a result, nine school districts were funded and offered technical support, leadership development, coaching, and financial assistance. The goal of the funding was to build capacity to offer quality career-themed pathways using the core

components of Linked Learning that were accessible to all students within the district. These pathways were to include the four components of Linked Learning: rigorous academic and technical coursework, work-based learning, and support systems. The districts chosen through the grant process represented large, small, urban, and rural areas, with a total enrollment of 315,000 students, representing approximately 16% of public high school students in California. The demographics of the students were 75% non-White and 50% disadvantaged (Linked Learning Alliance, n.d.a). It is important to note that although the frameworks of CPAs and Linked Learning are similar, CPAs are identified as a program with specific requirements of cohorting, whereas the Linked Learning approach includes the four aforementioned components and is built around the previously mentioned guiding principles.

In order to fully assess the effectiveness of this approach, SRI International conducted annual comprehensive evaluations of the nine funded districts. At first, the data collected were focused on the groundwork of the development of systems and structures because districts were involved in the initial phases of strategic planning and implementation. The 2-year report, *Evaluation of the California Linked Learning District Initiative,* collected data from telephone interviews, surveys to students, site visits, and observations during professional development sessions. Through these evaluative processes it was found that the leaders in the Linked Learning districts were invested in the approach. The superintendents of these districts and other community leaders supported the Linked Learning approach as a reform effort. The 2-year study also found that students were engaged and hopeful, as 90% felt Linked Learning prepared them for college and 77% believed that they were mastering skills that would offer them a foundation for careers in the 21st century. After 2 years, gains were made in two of the components of Linked Learning: rigorous academics and technical education. Districts were adopting and

integrating curricula that addressed these components. These gains were attributed to external coaches provided by outside agencies and internal district staff who had completed coaches' training funded by the grant. However, instruction often remained teacher centered. One of the goals of this approach is for instruction to focus on being student centered and teacher facilitated to allow for deeper learning and development of 21st century skills. The data on the two remaining essential components of Linked Learning (work based learning and support services) led them to be identified as growth areas. The results of the evaluation study found that work-based learning opportunities for students were limited in scope. In addition, within schools and districts, certain obstacles to student participation still persisted in programs that supported the approach (Guha et al., 2012).

To comprehend the challenges of implementation and assess the progress of Linked Learning with regard to student outcomes, the SRI evaluation of the fourth year of the district wide Linked Learning grantees was examined in preparation for this research study. The report found that structures and processes had been laid out to further the execution and sustainability of this approach to education reform. Districts had developed a common vision, districts were actively demonstrating commitment to this vision, and dedicated personnel were focused on implementation of all four components (Adelman et al., 2014). Because districts had established the foundation, the 4-year study allowed for increased attention to student outcomes. The study found that students in Linked Learning were making steady and significant progress toward graduation and college eligibility when compared to their peers. The data showed that they were completing more A-G college preparatory courses for entrance into the UC/CSU system and earning more credits than those who were not in Linked Learning. Students were also developing attributes that are more difficult to measure but remain important to the 21st century

workforce and valuable to career preparation. Students in Linked Learning were more likely to work in groups, work with people in a professional setting, have given presentations to the public, and have communicated with adults in a professional setting. Furthermore, they outpaced other students in their ability to use technology for research, summarize information, and assess the credibility of digital resources. It is also important to note that the data reflected that students in Linked Learning developed a productive mindset, understood the benefit of education, had confidence that they could learn something difficult, accepted responsibility, and had completed job preparation documents (Guha et al., 2014). Individuals who are able to foster an academic mindset are able to connect to school, persevere, identify opportunities, learn from them and cultivate their own abilities. An academic mindset can be developed through contextual learning and instruction (Farrington, 2013).

The recent evaluation of the fifth year of Linked Learning program released at the end of 2014, *Taking Stock of the California Linked Learning Initiative*, continues to show promising results for students and build on prior years' evaluations. There are two highlighted findings from the student outcome data category, the first being that students in the Linked Learning pathways continue to be successful in accruing more credits than their counterparts from the freshman to junior year of high school, making them more likely than their peers to be on track for graduation (Guha et al., 2014). Secondly, these students are more inclined to remain in the same district through their senior year than their peers. Student permanence is an important factor related to student success, as transiency of low-income students has been found to have a negative impact on academic achievement. A study of students in Nebraska found that students' rate of mobility had a negative correlation to student achievement, specifically in reading, math, science, and writing (Isenhagen & Bulkin, 2011). Furthermore, a high student transiency rate

impacts students' classroom instruction but also interrupts administration responsibilities that affect school wide learning (Eddy, 2011).

Another key finding drew attention to a source of data that had not been collected previously in the Linked Learning evaluations: the completion of Algebra 2 by students in career pathways. This is an important metric because research in the area of completion of Algebra 2 has shown that successful completion of Algebra 2 has a greater impact on college outcomes than on career outcomes. The study defined college outcomes such as admission, selectivity, and course grades. Career outcomes were identified as workforce entry, occupational prestige, wages, and career advancement. It should be noted that Algebra 2 did not negatively affect the measurement of career readiness. Given this, the Linked Learning study found no statistically significant difference between students in career pathways completing Algebra 2 compared to those not in career pathways. As in past years, the fifth year evaluation measured college preparatory course taking (i.e., A-G completion) for those in Linked Learning pathways against the non-pathway students. The findings regarding completion of A-G coursework in the most recent evaluation were encouraging specifically for students who had completed their sophomore year. These students had completed A-G courses at a 7.9% higher rate compared to those in traditional high school programs. However, these results were weaker for Linked Learning students in grades nine and 10 and were not statistically significant. The reason for this could be due to the indicators used to track these students (Gaertner, Jeongeun, Deslardins, & McClarty, 2014).

Evaluation of a single site that has implemented Linked Learning can be found in the research of Center for Advanced Research and Technology (CART) in Clovis, California. The school addresses the four frameworks of Linked Learning: academic and technical coursework,

work-based learning, and support systems. Students enrolled in CART choose a career pathway that prepares them to enter postsecondary education. Classroom instruction focuses on rigorous core academics that are contextualized within a technical area centered on a career theme. Students have the opportunity to work with business and community members on relevant projects of their interest and/or internships. The school is built around small learning communities that provide personalized instruction and support systems for students. A 7-year comparative study analyzed the transcripts of students in CART courses against a control group of similar students who were not in CART courses. The highlighted results indicated that students in CART pursued postsecondary education at a higher rate than the control group; they were 11% more likely to enroll in community college and 3% more likely to enter a 4-year university (Forbes, 2011). These results indicate the progress that students can make in programs that include the components of the Linked Learning approach.

The momentum of the Linked Learning district initiatives and continued success of schools such as CART that address both academic and technical coursework led to the passage of Assembly Bill 790. The legislation directed CDE to offer support for the expansion of Linked Learning pilot programs. Due to California's fiscal crisis in 2011, minimal funding was earmarked for these pilot programs. Despite this setback, 60 districts were identified through the proposal process request to move forward with the implementation of Linked Learning as an approach to education reform. Although funding was lower than the James Irvine Foundation district initiative grants, the AB 790 Pilot districts were given access to some of the same supplemental resources to which the districts funded by the foundation had access, such as coaching, director training, and data support. These districts were able to learn from research and case studies from the original Linked Learning district initiative. One study of four Linked

Learning certified schools used focus groups, surveys, and interviews coupled with student outcome and transcript data. The study by Education Trust West highlighted three key findings that have eliminated or decreased barriers to students' college and career preparation. The analysis identified that the schools were embracing common practices designed to contribute to student success, mitigating or eliminating traditional high school barriers to students completing college preparatory coursework necessary for admission into a 4-year public university in California, and enabling students to graduate at higher than typical rates. The study found mixed results of academic achievement on standardized assessment tests. Observations from this study, along with the case studies of two Linked Learning districts, focused on the importance of leadership and culture in developing a broad-based coalition that can implement Linked Learning with fidelity. As in other education reform efforts, district leaders have faced resistance from teachers and other stakeholders who are reluctant to change. In the case of Linked Learning, one of the identified obstacles is offering a more rigorous and engaging curriculum that integrates technical education (Lafors & McGlawin, 2013). The case studies conducted by the Stanford Center for Opportunity Policy in Education (SCOPE) emphasized the role of leadership in guiding and supporting the development and implementation of Linked Learning. The case studies placed emphasis on the leadership and organization elements of adding additional structures to support the reform efforts of the Linked Learning approach. One organizational change was to provide Linked Learning directors and pathway lead positions that would be instrumental in the change process (Stanford Center for Opportunity Policy in Education [SCOPE], 2013). Individuals in these leadership positions would have access to extensive coaching opportunities to facilitate whole school reform using the Linked Learning approach.

Coaches' Training

In order for education reform efforts such as Linked Learning to be successful, school leaders need to understand the critical role educators' beliefs and expectations play in the organizational culture of the education environment and how coaching might be used as a strategy for change. Many education reform experts have identified coaching as a part of a comprehensive strategy to build capacity in changing systems and curricula to improve achievement for all students (Woulfin, 2014). From a historical perspective, the education system was built upon two tracks—college preparatory and vocational education—to align with society's economic and workforce needs (Clark, 2007). These separate paths created equity and access issues that failed to provide rigorous instruction that would prepare all students for both college and careers within the context of a demanding global economy. Since many teachers are unprepared for the challenges of educating all students to high levels, school districts are initiating new ways to address these inequities of instruction and course offerings (Neufeld & Roper, 2003). As stated previously, the Linked Learning approach and CCSS are addressing the increased level of education, knowledge, and skills every student will need to possess in order to be successful in the 21st century economy. Linked Learning offers a comprehensive approach that addresses CCSS (Rustique & Stam, 2013). However, preparing all students for the rigor of college and careers that addresses the complexities of the 21st century workplace can be challenging. A change of teaching practice often means a change of the underlying beliefs and values that are embedded in institutionalized educational practice (Fullan & Knight, 2011). Therefore, a shift in mindset and culture is required for many educators to implement these new instructional practices required for CCSS and embrace the Linked Learning approach. The value of using coaching as a tool to support these organizational changes has been documented in both

business and education. The research in education reform efforts highlight the finding that they are not self-implementing and often do not integrate into the classroom. Coaching supports ongoing practice as well as high quality professional development that is relevant and engaging (Borman & Feger, 2006). Its effectiveness and use in reform efforts is the rationale for its use by Linked Learning facilitators to build the capacity of the approach in schools and districts and to change instructional methods (ConnectEd, 2014).

Because coaching in education is relatively new, one can find many definitions in the literature on coaches and the role they play within the educational system. This variety of definitions and coaching responsibilities can present challenges for researchers who are studying the effectiveness of coaching (Cornett & Knight, 2009). The lack of a consistent definition has led to different interpretations and structures for coaching within the education system (Borman & Feger, 2006). A broad definition of coaching that crosses many disciplines is described as facilitation used to delineate the strategies to improve performance (Brown, Baker, Fouts, & Stroh, 2005). The Aspen Institute Program on Education also supported the need to improve teaching and learning for students and teachers on a large scale, with the goal of all students performing at high levels, identifying coaching as a strategy for reform. Their report, *Coaching, A Strategy for Developing Instructional Capacity*, defined coaching as, "activities related to developing the organizational capacity of the whole school" (Neufeld & Roper, 2003, p. 4). The International Coaching Federation's definition of coaching is, "partnering with clients in a thought provoking and creative process that inspires them to maximize their personal and professional potential" (Fazel, 2013, p. 4). Others have described coaching as a model centered on the principle that teachers can identify ways to improve their own practice with a peer who can provide time for reflection and feedback (Williamson, 2012). In order to emphasize the

definition selected from literature that best represents this study, it is important to understand the primary purpose of coaching: to empower adult learners to take the necessary steps to improve their skills and reach their professional growth goals (H. Knight, Stinnett, & Zanger, 2008). The comprehensive definition of coaching includes the recognition of coaching as a collaborative, solution-focused, results oriented, systematic process that allows the coach to facilitate the enhancement of life experiences and activities, allowing for self-directed learning, personal growth, and achievement of goals (Grant, 2001). This definition allows for the importance of focusing on the adult learner. The linkages between coaching and adult learning theory were also found to be intuitive in a mixed methods study that sought to make the connection between and identify best practices of adult learning and coaching. The study found that 98% of the coaches interviewed were using the principles of adult learning (Lubin, 2013). To fully implement and assess coaching as a successful practice for education reform such as Linked Learning, practitioners need to comprehend the role of adult learning theory in coaching and how it can build capacity for school reform within education institutions.

Adult Learning Theory

The transition from traditional methods of professional development, workshops, conferences, and trainings to coaching as a viable tool for organizational change through improved practice is rooted in adult learning theory or andragogy. The basis for goal attainment of agreed-upon outcomes is a partnership between the coach and the person being coached, where the coach needs to be able set aside biases and assumptions to provide a platform of empowerment and learning that leads to individual growth (Fazel, 2013).

It is important for educational leaders to understand adult learning and the research that supports it, as both define how a coach interacts with teachers/peers to improve instruction that

leads to high degrees of student achievement (Tschannen-Moran & Tschannen-Moran, 2011). The report, *Learning to Change, School Coaching for Systematic Reform*, identified adult development theory as one framework via which to garner information on the goals and strategies of coaching. *Learning to Change* referenced studies that suggest coaches help to guide adults through personal and social developmental phases (Brown et al., 2005).

Another study associated the adult developmental theory framework with a peer coaching model for entry level teachers, using the strategy of observation and conferencing where coaches met individually with beginning teachers and reviewed video recorded lessons. The coaching between coach and new teacher involved evaluating the new teachers' instruction via video recording, discussion of new teachers' performance, reviewing and comparing past video recordings to current ones, and agreeing to objectives to improve instruction. The results suggested that the coaching model improved the instruction and teaching behaviors of new teachers. In addition, both coaches and trainees felt positive about the experience (Morgan, Menlove, Salzberg, & Hudson, 1994).

Malcolm Knowles (2005), one of the first researchers to study human development as it relates to adult learning or andragogy, concluded that adults learn differently than children. He described fundamental differences between pedagogy (i.e., teaching children as learners) and andragogy. Knowles and his colleagues' theory of andragogy frameworks included four core characteristics of the adult learner. Further study of andragogy by Knowles resulted in two additional characteristics being added. These six core components identified in Knowles's work and defined subsequently are rooted in the belief that adults are autonomous, free, and growth-minded individuals.

- Self-concept: As people mature, they move from being dependent toward being more self-directed.
- Experience: As people mature, they amass a growing set of experiences that provide fertile resources for learning.
- Readiness to learn: As people mature, they are more interested in learning subjects that have immediate relevance to their jobs or personal lives.
- Orientation to learning: As people mature, their time perspective changes from gathering knowledge for future use to immediate application of knowledge. As such, adult learners become more problem-centered rather than subject-centered.
- Motivation to learn: As people mature, they become more motivated by various internal incentives, such as need for self-esteem, curiosity, desire to achieve, and satisfaction of accomplishment.
- Relevance: As people mature, they need to know why they need to learn something Furthermore, because adults manage other aspects of their lives, they are capable of directing or, at least, assisting in the planning and implementation of their own learning.

The research on adult learning is one of the frameworks for coaching. The techniques and principles of Knowles' andragogy frameworks reflect the how and why adults learn. Coaching can be a means that supports learning self-assessment and behavior change (Lubin, 2013). Understanding the stages of adult developmental theory and the characteristics of adult learners will lead to effective coaching that builds capacity in education reform efforts (Fullan, 2008). It is important for education leaders to identify not only the instructional needs of teachers but also the needs of coaches as adult professional development facilitators and the role

they play in whole school reform. *Coaching, A Strategy for Developing Instructional Capacity*, recommended that professional development for coaches include understanding professional cultures as learning organizations, understanding of adult learners, and understanding of reform as the rationale for changing instructional practices (Neufeld & Roper, 2003). Documentation on coaching in education has determined that coaches need to be teacher-centered, where the coach demonstrates, advises, and teaches. The documentation supports andragogy because it motivates teachers to learn and gives them ownership of their professional learning. Furthermore, coaches should also be able to focus on *no fault* conversations to reduce defensiveness and facilitate teacher self-efficacy and motivation. The work coaches do with teachers should be strengths-based, with a focus on positive practice that will help to set self-directed learning goals that support the relevance of learning (Tschannen-Moran & Tschannen-Moran, 2011).

The Collaborative Coaching and Learning (CCL) program in Boston Public Schools is highlighted in the *Learning to Change, School Coaching for Systematic Reform* report as an example of andragogy within a coaching model. Prior to piloting the CCL program, the Boston schools had received change coaching, coaching of school site and district leadership related to school reform, and literacy coaching. The establishment of CCL in 26 schools led to contracted professional development time where coaches and teachers learned, practiced, and reflected on the use of literacy programs. All teachers in all schools were expected to participate based on the timeline for full implementation. During this process the change coaches were renamed *capacity coaches* or *lead coaches*, with professional development focuses on examining student work and developing teacher leadership. The coaching foundation of CCL is built on the beliefs about adult learning and the importance of adult social interaction. The model of coaching supports adult learning by allowing teachers, coaches, and education leaders to engage in a collegial,

collaborative process of inquiry into student learning and teaching. These influences helped to make CCL a successful coaching program (Brown et al., 2005). A University of Michigan program found that the literature highlighted 10 exemplary elements of effective coaching that infuse the principles of adult learning theory (Koh & Newman, 2006). They are highlighted in Table 2.

Table 2

Exemplary Elements of Coaching

Element	Literature Review Findings
On-Site Coaching (Instructional Coaches)	Takes place in classroom, less disruptive, can put in immediate practice, more buy-in, allows for modeling, collaboration, demonstration
Balanced and Sustained	Temporary training during breaks does not work, reallocating time throughout the year is best practice
Good Coaches Don't Dictate	Ability to know when to push and when to wait, use of leadership traits is important
Trust; Strong Interactions	Adults want to learn on own terms work with coach to determine objectives, content, activities and assessment, adults want respect, trust and concern from coach, more contact with coach as another adult is beneficial
Provide Descriptive Feedback	Immediacy, descriptive, specific, observable, behavior focus feedback gains results, Feedback should begin positively, use cause and effect inferences and scope of what adult can use
Match/Complement Teachers' Behavioral Style	Modify support and direction depending on adult learner request and goals, consideration of adult self-direction, style and preferences
Promote Professional Reflection	Prompt and facilitate adults analysis of learning objectives, performance and decision making, examines methods, practices, listening and communication skills
Coaches need to be Well-Trained	Prior experience and personality, interpersonal skills, pedagogy, coaching knowledge
Good Coaching is Collaborative	Treat as equals, spend time on collaboration
Prioritize	Identify priorities, practices for coach and adult learner

Impact of Coaching

There is consensus in the literature that the use of coaching can improve instruction and increase student achievement. An analysis of the National Assessment of Educational Progress (NAEP) data presented in the report, *How Teaching Matters: Bringing the Classroom Back Into*

Discussions of Teacher Quality, indicated that professional development is a strong factor in determining higher student achievement and that changing instruction could have a strong impact on improving student outcomes. Students who were taught by teachers who received consistent and collaborative professional development in the area of working with various student populations outperformed their peers by 107% on the NAEP (Wenglinsky, 2000).

Linking professional development and coaching to classroom instruction was the basis for a study of 20 teachers. The study compared five teams of two educators (a peer coach and teacher) at one school and five single teachers at another school who received the same professional development. The school that did not receive the coaching stopped using the skills taught in the professional development sessions. The school receiving the coaching and professional development increased their transfer of information from the professional development over a 15-week timespan (Truesdale, 2003). To further substantiate these findings, a study of 82 teachers in the Topeka, Kansas school district found that 85% of teachers who received additional ongoing instructional coaching in the school year that stemmed from what was learned in summer trainings were implementing these changes in the classroom. It is noted that no control group was studied to make a comparison. Other studies done on effectiveness of professional development without coaching did not yield high results of implementation and fidelity (J. Knight, 2007).

An additional study on coaching and professional development was conducted with 50 teachers from ethnically diverse school districts. Teachers attended afterschool workshops where they learned to use a content/graphic organizer in instruction. Results of the study indicated that teachers who were supported by an instructional coach were more likely to use the content organizer, as well as the four high qualities of implementation, than those who only attended the

afterschool workshop to learn how to use the content organizer. From these studies, one can generalize that coaching impacts teaching practice and student achievement. It should be noted that these studies occurred during the early stages of coaching being used as a strategy in education, and continued research needs to be conducted on the subject (Cornett & Knight, 2009).

Characteristics/Qualifications

Coaching has been identified and used as an effective practice to improve operations within the business world for a longer length of time than in education. Thus, there is more information in the literature on the characteristics of effective coaches in the corporate and sports world than in the education arena. Additionally, a variety of coaching models such as peer coaching, instructional coaching, and executive coaching are used in both business and education. These different approaches provide for a narrower focus of the literature and lesser focus on the general characteristics of coaching. Furthermore, the literature discusses two different coaching approaches. The traditional approach does not require the coach to be a subject matter expert in teaching practices and educational settings. The other is one of specialization of content, substance, and leadership (Devine, Meyers, & Houssemand, 2013).

This literature review has highlighted the frameworks of adult learning and its impact on student achievement. Another critical piece for leadership to ensure the success of coaching is identify the characteristics of an effective coach, which will allow coaching to produce the intended results of improving aspects of the organization that would lead to change. In *The Journal of Management,* Daniel Feldman and Melanie Lankau (2005) reviewed the research on several facets of executive coaches and found a difference of perspectives on the characteristics, demographics, and background of coaches. They found that the executive coaches' role was not

one of technical experts who would provide direction on business initiatives. Their primary purpose was to improve individual effectiveness in organizations through a formal and structured process that included time limits and goals.

The literature showed differences in the qualifications of executive coaches. Several studies highlighted the importance of an educational background in psychological dynamics and the need for coaches to have an in depth understanding of adult learning theory and human personality. A comprehension of these areas allowed clients to build and maintain their skills based on a confidential and trusting relationship. Other studies focused on having the essential knowledge of the business operations, management, leadership, and politics within organizations. Feldman and Lankau (2005) summarized their findings, citing a study from 2000 in which 72 articles from both press and academic literature were evaluated for content on coaching backgrounds. They found that less than one third of the articles referenced training in psychology, thus concluding that it was not regularly or universally recognized as an important qualification in executive coaching. Additional studies on the characteristics of coaching for business organizations also demonstrated the importance of communication skills, including questioning and active listening, the ability to create and develop action plans with action behaviors, as well as an understanding of adult learning theory, businesses, and the dynamics of organizations (Brown et al., 2005).

Many of these qualifications, skills, and characteristics that have been identified within the practice of executive coaching align with those in the education arena. The emphasis on the ability to build trusting relationships is evident in both areas. The Center for Collaborative Education (CCE) referred to the importance of the school site coach establishing credibility by developing strong individual relationships with staff members. Similar to business coaches,

CCE also stressed the need for effective coaches to have strong communication skills with a high level of verbal and written competence that allows them to respond and give feedback without judgment. In addition, these skills are necessary for the coach to be able to articulate goals and objectives, synthesize information, and keep conversations outcome-driven. The benefit of strong writing skills will aid in capturing ideas, keeping records of progress toward goals and long term plans, and providing another means to define complex situations for reflection (Center for Collaborative Education [CCE], 2004). Just as Feldman and Lankau's literature review attested to the importance of executive coaches having an understanding of business and organizations, the literature review of education coaches found the same. Those in education should have content knowledge in the respective area such as classroom management or subject/content to coach teachers (e.g., math, science, etc.). The knowledge of the coach allows them to establish credibility with their peers to give feedback, support, and suggestions (Ackland, 1991). Additional discussions within the literature reveal that education coaches need to go beyond content knowledge to have a broader understanding of educational issues and practice, as well as be knowledgeable in areas of school policy, instructional strategies, curriculum, and student demographics (Brown et al., 2005).

Conditions for Coaching

The literature highlights the increasing trend toward using coaching within organizations because it can be tailored to specific areas of training and development. Studies have found the rationale to use coaching falls into three areas: to support a strategic initiative, to support leadership development, and to respond to individual requests. However, the findings suggest that there is often a lack of training, standards, and appropriate conditions for coaching to be effective within an organization (Fielden, 2005). In order for organizations to use coaching as a

strategy to build capacity and achieve results, the rationale and use of coaching must be understood and agreed upon by all levels of staff. An adoption of the process among all stakeholders within the organization will help foster a culture of coaching (Whitmore, 2002). Each person in the school community has to be able to see himself/herself as a coach (Hanson & Hoya, 2015). To build and support this culture, it is essential for leaders to believe in the strategy and be able to articulate their own experiences with coaching and how it helped them achieve their goals. Leaders are also tasked with the responsibility of creating the conditions for coaching within their organization.

The literature draws attention to the importance of the human interaction aspect of learning. To create a learning environment that will foster successful coaching, leaders have to ensure partnership equality and mutual learning is taking place between the coach and the person who is being coached. Sufficient time for quality dialogue and a neutral space for reflective practice should be provided (Devine et al., 2013). Leaders must recognize that coaching is ongoing, inclusive at all levels, supported by structure and processes, based on research into practice, and represents a shift to collective ownership. If these conditions are met, the capacity to sustain a culture based on the shared ownership of coaching as a means to improve organizations can be realized (Hanson & Hoya, 2015). By addressing the elements of andragogy, pedagogy will improve, student achievement will increase, and systems can change.

Summary

The education system of the 20th century was built to address the workforce needs of a rapidly expanding industrial society. Pressures to educate growing masses of a diverse population led to continued separation of academia from vocational education. Most often, students from families of immigrants and poverty were tracked into coursework that prepared

them for entry-level low skilled jobs. Federal legislation supported this approach with specific funding earmarked for vocational education. John Dewey and other progressive educators opposed this principle and supported the notion that schools should be student centered while offering experiential learning opportunities to prepare all students to participate actively in a democratic society (Garrison, 1999). Dewey's approach has been rediscovered in developing meaningful education in today's global and diverse marketplace. The advances of the 21st century have changed the landscape of the workforce. The literature emphasizes that a high school diploma will not suffice for the increased demands of an ever-changing 21st century workforce. The data projections in the literature point to the necessity for students to graduate from high school with both college and career preparation in order to compete on both national and international levels (Carnevale, Jayasandera, & Cheah, 2012). However, the education system often still operates under the tracking system of the 20th century and at risk students are not placed in nor do they have access to college preparatory coursework and support systems to be successful (Conley, 2010). Furthermore, current classroom instruction for all students may not address the critical thinking, problem solving, communication, and creativity skills needed in the rapidly changing technology driven work environment of this century (P21, n.d., 2007). Although some progress has been made, schools have been slow to change systems. College and career indicators still show an achievement gap for students of at risk populations who are not prepared for success in college and beyond. CCSS were developed as a means to assess the deeper knowledge and new skill set of the 21st century (Williams, 2014). Although the CCSS are still controversial, it was important for the nation to implement a consistent system of assessment across states to ensure that all students, regardless of their background, were prepared to compete and participate in the economy of this new era.

Changes in the requirements for students to compete in current and future job markets through the implementation of CCSS have challenged schools to change beliefs and systems that have been carried over from the previous century (Bidwell, 2014). To ensure that all students are prepared for both college and careers, instructional practices and systems need to change. The Linked Learning approach has shown promising results for at-risk students (Guha et al., 2014). The approach identifies four components: rigorous academic coursework, high-level technical coursework, experiential/work-based learning, and support systems (ConnectEd, 2014). These core components, along with Linked Learning's guiding principles, support John Dewey's philosophy of progressive education. The mission of Linked Learning is to prepare all students for college and careers through rigor and relevance of classroom instruction (SCOPE, 2013). For schools and districts to build capacity for this approach, there needs to be a shift in culture within the education organization.

The Linked Learning Alliance has identified coaching as a strategy to guide this change. The literature shares ample empirical data on the effectiveness of coaching to improve instructional practice and reform education. Understanding adult learning theory is essential to promoting the fidelity of a coaching program and a key factor in establishing a learning culture within schools (Devine et al., 2013). It is evident in the literature that education systems have to provide the knowledge, skills, and competencies to succeed in a rapidly changing world of this century. Academic knowledge is still an important part of education, but additional student outcomes need to be addressed. A more holistic, multi-faceted approach to education will aid in the change of not only instructional practices but also organizational structures that have created inequities and diminished access to students who are in the most need.

Chapter 3: Methodology

The literature review conducted for this study found that employment trends of the 21st century necessitate students having an education beyond a high school diploma to be successful in today's job market. Economic forecasts project that employers in the 21st century will continue to require higher levels of education, critical thinking, problem solving skills, and complex communication and social skills (Koenig, 2011). However, the education system in the United States is not preparing all students to be proficient in these areas to meet the demands of a changing workforce. One education reform strategy that has shown promising results is the Linked Learning approach. The Linked Learning approach incorporates rigorous academic and technical coursework within a career-themed course of study that allows for real world learning opportunities within a work-based learning continuum. In addition, the implementation of a support system that addresses any challenge and/or barriers to student learning and achievement is an essential element of the approach. Philanthropic and public funding through a grant process have been allocated to school districts to implement Linked Learning as a reform strategy. However, in order to ensure all students are college and career ready and have the interpersonal and intrapersonal skills to be successful within the Linked Learning frameworks, a shift of instruction, assessment, practice, and policy needs to take place to transform the system (ConnectEd, 2014).

Professional development in the area of coaching has been an area of focus to address change and sustainability for districts that are working to improve schools through the Linked Learning approach. In Chapter 2 of this study, coaching was shown to be a success in changing instruction. Coaching modules that lead to certification as a Linked Learning coach have been offered to educators in the school districts that were awarded grant funding. The LEAs include:

districts funded by the James Irvine Foundation to implement Linked Learning, CDE pilot districts for Linked Learning, and the California Career Pathway Trust grant awardees that have referenced Linked Learning as a means for career themed pathway development in their grants. SRI, the independent, non-profit research institution, identified coaching as an important facet in giving guidance and assistance in support of a comprehensive district approach that leads to Linked Learning implementation (SRI, 2014). Since 2010, various entities have made a substantial financial investment in the coaches' training for over 200 educator practitioners in California. The purpose of this study was to examine the impact of the coaches' training on the implementation of the Linked Learning approach in schools and districts within California.

Research Question/Methodology

The goal of the coaches' training for education practitioners is to help them address change by building communities of practice that lead district wide Linked Learning efforts that incorporate the guiding principles: prepare all students for college, career, and life; ensure all students have a full range of post-secondary options, connect academics to real world scenarios; and improve student engagement. These guiding principles are contextualized within the four core components: rigorous academic coursework, challenging technical training, work-based learning, and comprehensive support systems (Linked Learning Alliance, n.d.a). The literature review examined research on the implementation of Linked Learning within districts. In addition, the use of coaching as a professional development strategy to improve instruction was referenced. A survey method approach was utilized as part of this quantitative research study. The survey method allowed closed-ended questions to be asked of a specific targeted group, the participants in coaches' training, to determine behaviors, knowledge, and attitudes related to Linked Learning implementation. Further elaboration on the specifics of the survey method

approach for this study is presented in the Design of the Study section within this chapter. The value of coaches' training to the participants and to reform efforts of the districts in California that are involved in Linked Learning is important to the strategic planning and implementation of the approach. The following inferential research question served as the basis for this study: Does the coaches' training given to education practitioners within Linked Learning districts impact the implementation of the Linked Learning approach?

Within the aforementioned inferential research question, specific interest was given to further defining the coaches' training and how it is operationalized through the seven professional development modules. Survey design allows the researcher to make inferences regarding the attitude and behavior of the general population (Creswell, 2009). In this case, the attitudes and actions of the educators who gained knowledge and content information through Linked Learning coaches' training were used help to determine if the training impacted the implementation of the Linked Learning approach in their respective school sites and districts.

The rationale for choosing survey research as the method for the data collection was due to the following factors as referenced in Kumar's (2011) *Research Methodology:*

- Anonymity: The participants in the study can give feedback without identifying themselves. The respondents could hold administrative and certificated positions. Anonymity would allow them to respond without any presumed negative impact on their job status.
- Geographical Location: The pool of participants comes from various districts across the state of California. The survey enabled the researcher to cover the vastness of the area.

- Education Level: The study population is made of teachers and administrators who have gone through the coaches' training for Linked Learning. The population would also have a strong foundational knowledge of Linked Learning. The questions asked in a survey might not require the clarification needed when questioning other populations with different demographics, different education levels, and lack of program knowledge.

Surveys have been used in prior research centered on the impact of professional development and the effectiveness of coaching in education and other areas. The Bill and Melinda Gates Foundation used survey data to assess professional development. Over 1,600 surveys were used to aid in the evaluation of current practices that support professional development of educators. These survey data reflected in the 2014 report, *Teachers Know Best, Teachers Views on Professional Development.* In an extensive literature review of 49 relevant studies on evaluation of leadership coaching, surveys were used in 67% of the studies and identified as one of the most popular approaches (Tooth, Neilsen, & Armstrong, 2013). Additional research outside the education arena has shown survey data to highlight coaching as a means to improve preventive care/wellness for patients, change behaviors, and reflect communities of practice.

Similar to education, health care institutions are affected by multiple societal and system influences that reflect disparities amongst a population. The *Healthy Howard Health Plan* developed a health coaching model and used survey data to assess the program. Research found that the use of this patient data indicated that it is a promising practice for the promotion of sustainable change (Kromm & Beilenson, 2011). These examples give additional support and foundation to the use of a survey to address the theoretical framework of this research.

Design of the Study

The literature review presented a historical economic context of U.S. education, offering a perspective on the development of a public education system that included two tracks: a vocational/work preparation track and a separate college preparatory track for those pursuing higher education. The literature also referenced the incorporation of the four tenets of Linked Learning to address equity and access to college and career preparation. In addition, the integration of 21st century learning and instruction to include both rigor and relevance can lead to changing the practice of two defined, separate tracks for students. Several studies indicated that Linked Learning could be a promising approach to prepare all students for college and careers through high quality, career-themed pathways. The goal of this research is to determine if the coaches' training provided to Linked Learning educators leads to and/or supports a systems change that prepares all students for the high level of education and skill demands of the 21st century workplace instead of the separate tracks of work or college that have historically been the norm in public education.

The coaches' training is administered and facilitated through two agencies, ConnectEd of California and the Center for Powerful Public Schools. It consists of 4 days of on-site professional development and additional online instruction allowing for both synchronous and asynchronous learning. The coaching professional development requires participants to attend face-to-face sessions that are supplemented with an online learning management system for collaboration, assignments, and resources and research (ConnectEd, 2015). Completion of additional documented practicum hours in coaching can lead to certification. There are seven modules within the coaches' training, each of which has specific learning outcomes that correlate

with successful coaching practices, the guiding principles and four core elements of Linked Learning (ConnectEd, 2015). They are categorized as follows:

- Supporting systems of quality linked learning pathways
- Coaching leadership for significant changes in educational practice
- College and career readiness
- Coaching for equity in a system of linked learning pathways
- Supporting effective collaboration and communities of practice
- Encouraging a culture of continuous improvement
- Providing targeted coaching services

The constructs of the coaches' training are built around the premise that changes in instructional practices and institutional policies will provide the infrastructure for all students to access quality career-themed pathways that lead to college and career readiness and development of 21st century skills, which are the goals of Linked Learning. When participants complete all seven modules, it is assumed that they will have the coaching tools and strategies to implement Linked Learning within their schools and districts. To test the central research question of whether the coaches' training impacts the implementation of the Linked Learning approach, the study design aligned to previously determined outcomes for the coaches' training. Descriptions of these outcomes developed by ConnectEd are found in Appendix B. Because the embedded survey questions are based on the coaches' instruction and training in real-time to assess the learning progress of the participants and program quality, they did not reflect the impact after the training was completed and participants returned to their school sites and district with the knowledge they gained during the training. The study examined the impact of the coaches' training after completing the training, when participants were working on the implementation of Linked

Learning in their districts and/or school sites, through Likert scale response alternatives. The responses allowed for an analysis of the impact of the coaches' training on Linked Learning implementation.

The Likert scale is the most widely used scale in survey research (Edwards, Thomas, Rosenfied, & Booth-Kewley, 1996). It is defined as a summated rating scale of fixed choice responses that assumes each item has equal value and importance for the subject or area in question. However, the equal value rating assumption can also be a disadvantage to using this summated rating scale because often each item does not have the same value (Kumar, 2011). Since it is the most widely used scale in survey data, the Likert scale was chosen to measure fixed responses of the educator participants in the coaches' training. In this case, a modified Likert scale has already been used in the Linked Learning coaching modules for participants to self-assess their knowledge and learning during the training. The survey developed for this research consisted of five related Likert statements/items that were designed to compose a Likert scale for each of the seven content area modules in the coaches' training. Although the survey was adapted from the established outcomes of each of the seven modules, the survey questions for this specific research study are newly created. A composite score was calculated and analyzed at the interval measurement scale from the scale items within each module. Several studies were reviewed that used the Likert scale. For this study, the 5-point scale consisted of a range from strongly agree (value of 5) to strongly disagree (value of 1). The full survey can be found in Appendix C. An example of the alignment of the module, outcome, survey question, and Likert item measurement is illustrated in Table 3.

Table 3

LL Coaches' Outcomes Alignment with Survey, Module 1: Supporting a System of Quality Linked Learning Pathways

Outcome for Participants	Likert Survey Questions Developed from Outcome	Responses for Each Item
Share the belief that all high school graduates should be prepared for both college and career and actively promote systems of high quality linked learning pathways that are accessible to and support the success of all students.	I have used the knowledge and skills I received from the Linked Learning Coaches' training to: • Share the belief that all high school students should be prepared for both college and career • Actively promote a system of high quality Linked Learning pathways that are accessible to all students • Actively promote a system of high quality linked learning pathways that support the success of all students	1: Strongly Disagree 2: Disagree 3: Neither Agree or Disagree 4: Agree 5: Strongly Agree 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5

The survey used a 5-point Likert scale with responses ranging from 1 (strongly disagree) to 5 (strongly agree) for each of the six questions per module. A total of 35 questions were asked, five within each of the seven content area modules with intended outcome. Although a 5-point scale can force a response that does not accurately portray a participant's level of intensity in his/her answers, it does allow for a response if participants are undecided. Notably, some empirical studies have found that an increase in measurement categories can yield more information, but other research on categorical response determined that a 5-point scale provided better quality data (Revilla, Saris, & Krosnick, 2014). Because the study has 35 questions and some studies have shown support for both 5- and 7-point scales, it was decided to use a 5-point scale for this study. A Likert scale of 5 points allowed for preliminary data results that could be

applied to future research. The use of a 5-point Likert scale made the survey require less time and be more manageable for the population.

Reliability and Validity

Validity determines if the scores from the survey instrument will provide inferences that are meaningful and useful (Creswell, 2009). Several research studies centered on the various topics included in this study such as professional development, coaching, education reform, and leadership incorporated survey instruments to collect data. To address the validity of this study, those surveys were studied and reviewed to ascertain the direction and composition of survey questions. The researcher was unable to locate an existing instrument to establish prior validity of a program that addressed the areas which to measure the core elements or outcomes of Linked Learning within a coaching professional development model. A dissertation on andragogy and coaching used a web-based survey instrument in a mixed-methods study to determine coaching practices within adult learning frameworks (Lubin, 2013). The survey created for this research study was generated by using the foundational knowledge from other surveys to align the existing seven module outcomes to the creation of the survey questions, which can be found in Appendix C. Content validity ensures that the questions reflect the issue they were designed to measure and that there is a rational connection between the questions and the objectives of the study (Kumar, 2011). Construct validity allows the research study to analyze the constructs or concepts and verify if the data will serve a useful purpose (Creswell, 2009). Construct validity was measured through the number of questions per module with specific outcomes addressed. To determine the content and construct validity of the questions, the researcher reviewed them with the education professionals who have facilitated and participated in the coaching sessions and consulted with Linked Learning. In addition to their extensive background in working with

the Linked Learning systems, coaching, and instructional strategies, their expertise includes doctoral research in brain development and partnerships involving school change. They have previously used survey data within the context of their work. Furthermore after receiving IRB approval, the survey was field tested prior to distribution with a professional colleague who completed the coaches' training and obtained the Linked Learning certification. The expertise of this colleague includes a Juris Doctorate, editing experience, teaching academic core subject areas, technical subject areas, and administration work in a secondary school environment. In addition, the colleague serves on policy committees for a local economic development committee and a national professional organization where web-based survey data have been used consistently to assess program quality, curriculum, instruction, and professional development for teachers, as well as provide data input for direction.

Reliability of the data is extremely important in survey data that is being transferred into quantitative measure for data analysis purposes (Boone & Boone, 2012). This study used Cronbach's Alpha for the Likert scale item analysis to assess the reliability of the questions that were developed within each of the respective seven modules. Since the five Likert scale items within each of the seven modules was created to measure the coaches' training outcome's impact on the implementation of the Linked Learning approach, Cronbach's Alpha allowed for internal measure of reliability. The calculation of Cronbach's Alpha coefficient is important when using Likert scale items for internal consistency reliability, otherwise the reliability of the results could be low or unknown (Giliem & Giliem, 2003).

Analysis Unit

Because this study researched the impact of coaches' training, the group of participants who have completed the coaches' training was the identified analysis unit being studied. These

educators, teachers, and administrators were from the nine initial districts that were awarded grants by the James Irvine foundation and additional school districts and county offices of education that were identified as pilot programs through the CDE's grant applicants to implement the Linked Learning approach. The objective of this study was to assess the impact of the coaches' training in the implementation of the Linked Learning approach. Responses from this unit of participants who completed coaches' training were examined. The results are presented in Chapter 4.

Population

The population for this study is a target group of approximately 200 educators from school districts identified within the Linked Learning networks who have accessed the coaches' training from the years 2010-2015. These educators work in LEAs throughout the northern, southern, and central areas of California and represent small, large, urban, and rural districts. The population was defined as teachers (certificated) and leadership (administrative) personnel with varying levels of education and experience. It should be noted that teachers holding a career technical education credential are not required to have a baccalaureate degree to teach a technical subject but are required to have industry experience in their content area. The demographic data collected on the survey included: age, gender, ethnicity, education level, position in the school/district, number of years in that position, number of years' experience in Linked Learning, and when the Linked Learning coaches' training was completed. Additional school and district information was collected that included the location of the LEA and enrollment. Inquiry regarding the adoption of Linked Learning as a district initiative was also included.

The coaches' trainings for Linked Learning have taken place over a span of 5 years. The initial groups were the districts awarded grants by the James Irvine Foundation for Linked Learning implementation. Since then, other school district educators who are using the Linked Learning approach have participated in the coaches' training. These districts have identified Linked Learning as a part of regional/district efforts to address education reform efforts. The indicated demographic data allowed the researcher to gather in depth information on the population with the intention of obtaining a representative sample of respondents from various districts.

Data Collection and Analysis

The initial contact for the study was made in 2013 through an extensive discussion with the Director of Leadership and Development for ConnectEd of California and followed up with a discussion with a Director from the Center for Powerful Public Schools who facilitates the coaching professional development and certification process for the Los Angeles region. Both representatives gave approval to move forward with framing the research around the topic of coaching. Delays in research, coupled with staff and organizational changes, necessitated an initiation of repeated requests to other staff members within the ConnectEd organization. In October 2015 e-mail communication was received that gave approval to proceed with the research in coaching and permission to use information from the coaching modules' materials. This e-mail is attached in Appendix D. After IRB approval was received (see Appendix E), a formal letter was requested, which is attached in Appendix F.

The original survey was sent out to the reviewers who were previously referenced in the reliability and validity section of this chapter for input. The survey was administered via the web-based platform Survey Monkey, and the requests to participate were sent out to the training

agency facilitators: ConnectEd and the Center for Powerful Public Schools who distributed the IRB approved e-mail information, consent and approved flyer. Survey Monkey was chosen as the web-based platform because it is a leading web-based survey company used by millions of people and has addressed IRB guidelines that are identified in the following section of this chapter. Presentation and ease of use were taken into consideration. Participants would probably be familiar with using this online instrument to answer the survey questions. Additionally, a direct e-mail to known education leaders involved with Linked Learning efforts was sent.

As of July 1, 2015, approximately 200 educators from school districts throughout California have completed the Linked Learning coaches' training. A wide range of acceptable survey response rates for research can be found in the literature. The researcher's goal was to receive a minimum of 30 responses. Studies have documented a web-based survey mean response rate of 5.97 days, which was used as a benchmark to facilitate additional reminder notices (Wright, 2005). The initial response rate was monitored daily. Based on the response rate, a week after the initial email, a follow up reminder was sent to those the coaching facilitators from ConnectEd and Center for Powerful Public Schools. In addition, the researcher sent reminder notices through professional networks. Further description of the processes and adjustments to data collection can be found in Chapter 4. The research points to utilizing both web-based methods and following up with traditional mail delivery to improve the survey response rate (Milar & Dillman, 2011). It was not possible for the researcher to use the mail delivery method due to the confidentiality of the participants' personal information that ConnectEd required the researcher to uphold for this study.

Once the data were collected, analysis was performed on the Likert scale items, calculating the mean score and computing the standard deviation for each data set of questions that reflects the individual Linked Learning coaching modules. The web-based survey version the researcher used allowed for unlimited responses, data exporting, text analysis, and reports. The single composite score for each module addressed the research question, *Does the coaches' training given to education practitioners within Linked Learning districts impact the college and career readiness of students within their schools and districts?*

IRB

As a graduate student at Pepperdine University, it was essential that the researcher understood the importance and rationale of adhering to the IRB's guidelines and policies set forth by the university. The IRB certification for the Collaborative Institutional Training Initiative Program online training modules was completed and IRB approval was granted for exempt research on March 18 with the following necessary attachments: Pepperdine's online survey consent form, e-mail request to participate, and marketing flyer to participants. Table 4 reflects the summary that reflects the adherence to the requirements and guidelines of the IRB policy.

Table 4

IRB Guidelines

Area	Details
IRB	Submitted e-protocol system February, approval March 18
Dates	Study, data collection done mid-March to early April
Subjects	Adult educators who have participated in Linked Learning coaches' training
Risks	Minimal risks to subjects, education study that involves population that has already participated in the training, possible risk that their jobs could be connected to success of Linked Learning
Consent	Written consent given by facilitators and participants will agree to terms as part of survey participation.

To ensure the anonymity of the participants, requirements for online survey research were followed and are discussed further in Chapter 4. In addition to meeting Pepperdine's IRB policy, the Survey Monkey platform has been evaluated by the third part Truste and received certification for privacy. Other security and confidentiality measures that were addressed within Survey Monkey prior to sending the survey were:

- Additional consent form template
- Secure transmission
- Disabled IP address
- No response or prefer no response option
- Option to withdraw at any time
- Responses owned by researchers
- Enabled anonymous setting

Summary

The integration of career technical education with college preparatory curriculum is a priority for educators to prepare students for the workforce of the 21st century. To address this shift in instructional practice and prepare all students with the required education and skills needed, school districts have implemented the Linked Learning approach. Other studies have examined education reform efforts that have put forth instructional coaching strategies to address changes in instruction and practice. Many of these initiatives reference coaching as a way to build collective capacity (Mangin & Dunsmore, 2015). Similarly, key to the Linked Learning approach is building a community of practice that addresses changing teaching practices to outcome driven instructions and developing assessments that measure the knowledge, skills, behaviors, and abilities students will need to compete in the 21st century. In order to address this

change, ConnectEd has offered extensive coaching training to educators involved in Linked Learning efforts. This study used a quantitative approach that collected survey data to address the research question: *Does the coaches' training given to education practitioners within Linked Learning districts impact the implementation of Linked Learning?* The web-based survey was chosen to allow the participants who have completed coaches' training to assess their level of work to implement Linked Learning through the intended outcomes of the seven modules of the training.

Chapter 4: Results

The education system of the previous century was designed to meet the needs of an Industrial Age society where repetitive tasks and mass production of goods were key to the nation's economy. During this era middle class and routine labor jobs, which allowed high school graduates to directly enter the job market, were plentiful. The public education system mirrored this economy in preparing students for these jobs. The result was a two track system for students: one for those who pursued higher education (college preparatory) and one for those who directly entered the workforce (vocational). Yet, the dynamic changes to the 21st century workplace fueled by the rapid pace of advancements in technology and an expanding global economy have impacted the public education system. These forces have put pressure on educators to ensure all students are prepared for postsecondary education. In addition, classroom instruction has to allow for development of required new skillsets of communication, creativity, critical thinking and collaboration to prepare students for a continually fluctuating workplace. Linked Learning is an education reform strategy that has addressed these changes by incorporating four elements: rigorous academics and technical coursework, support systems and work-based learning opportunities. To implement the Linked Learning approach a change of instruction, systems and mindset is necessary. A coaching model of professional development has been used for educators in districts that have adopted Linked Learning as a reform strategy.

The purpose of this research study was to examine coaching and the impact on Linked Learning implementation. Thus, the web-based survey collected quantitative data to gain information for the following research question: Does the coaches' training given to education practitioners within Linked Learning districts impact the implementation of the Linked Learning approach?

This chapter will be organized to present the results of this research under four areas. The first section will describe the demographics of the participants in the study. In the second section the data collection procedures will be detailed including the communication to obtain participants, survey instrument and challenges to process. The data analysis and findings will be documented in the third section. The chapter will conclude with a summary of the results. An online survey was opened through Survey Monkey and was hosted for a period of four weeks. The following is the descriptive statistics of the 21 participants. It will show the demographic data collected from the participants in the survey.

Demographics

The population for this study was the educator practitioners who have completed the Linked Learning coaches' training. According to ConnectEd, the agency who facilitated the training, approximately 200 participants have attended the training since they provided the initial training in 2009 (ConnectEd, 2015). The training is provided by ConnectEd and the Center for Powerful Public schools. It consists of five days of in-person training, mentoring and access to additional resources through ConnectEd Studios, a web-based management system. ConnectEd Studios provided participants with additional professional development tools, support and access to a community of coaches. Ethnicity, gender, age, education, position and length of time in the current position, length of time in a Linked Learning district and when they received the coaches' training were asked of each participant. In addition, subsequent information was collected on the school or district where each participant worked. The survey asked respondents to categorize identifying characteristics of the districts: size, location, setting and enrollment. They were also asked if Linked Learning had been adopted as a district initiative. To be a participant in the survey, respondents had to have taken the coaches' training for Linked

Learning. There were 21 educators who responded to the survey. The majorities, 84.2% (16 responses) of the participants were female and 15.3% (3 responses) were male. Two participants declined to answer the question of gender. The ethnicity data is shown in Table 5. Although minorities represent close to 20% of the respondents, the majority were white/Caucasian totaling 73.68%. The breakdown of age is more evenly distributed than ethnicity. Two people chose to skip the question of age. Table 6 reflects the chronological age distribution. The survey respondent's education level ranged from some college to completion of a doctorate degree. Those who have obtained a CTE credential to teach are not required to have a four year degree but are required to have industry experience.

Table 5

Ethnicity of Participants

Ethnicity	Responses	%
American Indian	0	0
Asian or Pacific Islander	0	0
Black or African American	1	5.26
Hispanic or Latino	1	5.26
White/Caucasian	14	73.68
Other (Portuguese)	2	10.53
Prefer Not to Answer	1	5.26
Skipped Question	2	10.53

Note. $N = 21$.

Table 6

Age Distribution of Participants

Age	Responses	%
25-34	1	5.26
35-44	7	36.84
45-54	3	15.79
55-64	7	36.84
Over 65	1	5.26
Skipped	2	10.53

Note. $N = 21$.

Table 7

Participant Education Level

Education Level	Responses	%
Some College	1	5.56
Bachelor's Degree	3	11.11
Master's Degree	11	61.11
Doctorate Degree	4	22.22
Skipped Question	2	10.53

Note. $N = 21$.

The data related to the respondent's positions and training reflected their experience both in Linked Learning and in education. Approximately three-fourths identified themselves as a district pathway coach (42.11%) or a district administrator (31.58%). School site pathway coach generated four responses (21.05%) and one educator selected a career technical education pathway teacher (5.26%). The respondents could be considered relatively new to these positions. Over 79% had been in their current positions for 0-5 years, 10.5% for 6-10 years, and 5.26% in each category of 11-15 years and 16-20 years respectively. Yet, the data reflected they had worked longer in a Linked Learning district, 44.4% of the educators worked in a Linked Learning districts for over five years, 38.9% 1-3 years and 16.67 % for 3-5 years. Eight respondents (44.4%) had received the coaches' training 2-3 years ago. Five (27.78%) had been through the training 1 year ago and four (22.2%) within 3-5 years. Only one respondent had completed the training over 5 years ago. The data charts for all of the questions on demographics and information on districts can be found in Appendix G.

The additional questions in the survey that were asked aided in further defining the characteristics of the school sites/districts where the educators worked. All but one of the districts had adopted Linked Learning as a district initiative. Respondents came from all three areas across the state: 55.6% (10) from Southern California, 27.8% (5) from Northern California

and 16.67% (3) from Central California. The district location was evenly split between urban and suburban areas at 50%. In addition, the majority of school sites were from urban areas and over one third from suburban areas. No school or district locations in rural areas were reported. The survey data included school and district enrollment data. Due to most of the educators working at a district level (68.42%), the school site enrollment question was not applicable. The district enrollment information yielded the results found in Table 8.

Table 8

School District Enrollment

District Enrollment	Responses	%
Under 5000	0	0
5001-10000	2	11.11
10001-20000	1	5.56
20001-30000	5	27.78
30001-50000	3	16.67
50001-100000	3	16.67
Over 100000	3	16.67
Unknown	1	5.56

Note. $N = 18$.

Data Collection

Upon receiving approval from the Institutional Review Board (IRB) from Pepperdine University for the study, the survey was downloaded into an editable document. This document was sent to a secondary school education administrator with knowledge and background in education, policy, editing and Link**e**d Learning for input and feedback. This experience coupled with the administrator's previous use of surveys and attainment of the Linked Learning coaches' certification allowed for expertise reviewing the instrument and providing feedback. The survey had previously been reviewed by one of the coaching facilitators. Minor grammatical errors that included punctuation and capitalization were corrected. Revisions were made in wording of one item to improve comprehension. An additional category was added to question number 9 to

make a distinction between a school site and district pathway coach. A comment was made on question 17 in regards to barriers. There was agreement that policy issues should be separated out from other barriers. An additional comment was made by the reviewer for question number 21, inquiring on the rational for including assessments in outcomes in both question 15 and 21. In discussion with the researcher, it was determined that it would be left under each section.

The information for the survey distribution per IRB approval was compiled. It included e-mail communication, consent for online surveys and the recruitment flyer (See Appendix H). A condition of receiving approval from Connect Ed to research the coaches' training was not to allow access to the Linked Learning coaches' training participants contact information to the researcher. This was due to the fact that the participants had not approved for their information to be released. To invite these educators to respond to the survey, it was agreed upon to use indirect methods of marketing the survey. Thus, the survey information was sent out via third party, the facilitators of the coaches' training, ConnectEd and the Center for Powerful Public Schools who had access to the participants list. They in turn both shared the link within their respective networks. The representative from the Center for Powerful Public School copied the researcher on the information that was disseminated to key stakeholders with a request to contribute to the research. Connect Ed shared the flyer within the coaching community. In addition, the researchers' familiarity with professionals who worked within the Linked Learning community allowed for e-mail communication to be sent directly to those practitioners without having to depend on a third party. Per IRB approval, the direct communication via e-mails was sent to Superintendents, Assistant Superintendents and Directors with a personal request to forward to their staff who were involved in Linked Learning efforts. The process for the distribution of the survey and corresponding information is highlighted in Figure 5.

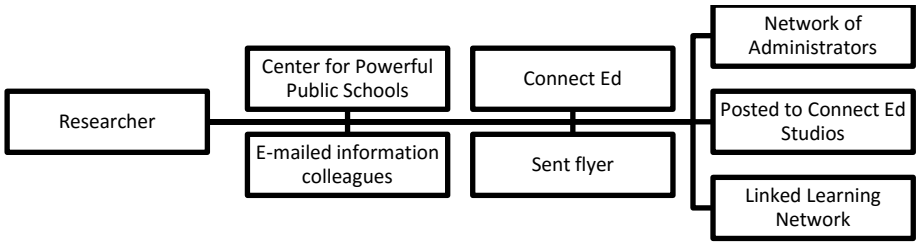

Figure 5. Distribution of survey request participation.

The response rate was monitored daily from the initial survey distribution to the facilitators and to the researcher's contacts. It was found that the response rate was null to minimal. Several factors contributed to this. Both of the facilitators of the coaches' training have a high level of responsibility and were not able to send the information out for five to seven days from the first correspondence. The timing of sending the e-mail was also a factor as it coincided with the official spring break for several districts which delayed the e-mail delivery to the contacts. Technology issues contributed to response rate. Several school districts blocked the e-mail due to the firewall, a security feature to avoid unwanted solicitations to public education agency. A change in the subject heading of the e-mails that deleted the word survey was done and e-mails were resent but still returned. The hyperlink to the survey within the e-mail would not open directly to the survey. This was not discovered until a colleague communicated the problem. A follow up e-mail to contacts provided a solution to the hyperlink issue. Due to the workload of the facilitators and not to be able to contact participants directly, there was additional effort to seek out participants. One strategy was to request to post the e-mail and flyer on the Connect Ed Studios wall. Connect Ed Studios is a portal similar to a learning management system that the coaches' use for assignments and communication. It was approved to post the information and share with various user groups within the platform. A snapshot is provided with the recruitment documents in Appendix H. A conference call on an educational issue led to researcher contacting the organizer inquiring about Linked Learning coaches'

training and explaining the research study. This led to additional contacts. The last strategy to increase participation included looking up schools and districts who were involved with Linked Learning. The challenge was that it was unknown if they had been involved in the coaches' training. Additional reminders were sent to all of those the researcher contacted directly. The Table 9 reflects the action and response rate with the number reflected in the parentheses.

Table 9

Table: Survey Response Rate

Time Frame	Action/ # of Contacts	Survey Response Rate	Comments
Week 1	Sent information to third party facilitators to forward (2) Sent information to internal contacts (4) Sent to information to district admin (6)	3	Undeliverable (2) Out of Office (1) No response (2) Confirmation to forward (1) Confirmation to participate (1)
Week 2	Sent from third party facilitator to contacts (7) New Contacts (2) Follow up Out of the Office (1) Reminder sent to week 1 contacts (8)	6	Undeliverable (1) Out of Office (3) Confirmation to participate (3) Undeliverable (3)
Week 3	Conference Call Contacts (2) New Contacts (8) Reminder sent to week 1 and 2 contacts (12) Posted on Connect Ed Studios	8	Undeliverable (3) Confirmation to participate (2) Confirmation to forward (1)
Week 4	Reminder sent to Week 2 and 3 (20)	4	Total undeliverable 6
Total	Total Initial Contacts (31) Total Follow Up (43)	21	

Out of the 21 respondents who took the survey, 15 respondents completed the entire survey, including questions regarding demographics, school/district information and the 35 Likert items, five under each of the seven modules. An additional open-ended question was added to the end of the survey by the dissertation committee members to gain information on

equity. The question—What has been the most effective approach used to address equity in your district?—was not directly related to the coaching module but addressed an underlying theme of equity and access which is at the core of the Linked Learning initiative. Ten respondents input answers for this question and it provided additional data for the study. Those comments are highlighted in the Data Analysis section and are documented in Appendix I.

Data Analysis

The research study utilized data collection from a web-based survey to determine the impact of the coaches' training on the implementation of the Linked Learning approach. Five Likert items were asked of the participants to determine a Likert Scale for each of the seven modules of the coaches' training. Participants could answer each item using one of the five categories: strongly agree, agree, neither agree or disagree, disagree and strongly disagree. A numeric value was given to each category. The integer 5 assigned to strongly agree then descending order to the integer 1 being assigned to strongly disagree. The mean, variance and standard deviation for the respective modules was computed using summative data of the individual score responses for each Likert item question. Descriptions of the modules were not given on the survey. This was intentional to not bias the response of the Likert items within the modules. In addition, each module allowed for additional comments for the respondent to provide applicable or clarifying information. A copy of the exact web-based survey can be found in Appendix C.

The first of the seven modules in the coaches' training is identified as *Supported Quality Linked Learning Pathway.* Quality Linked Learning pathways include the development of the pathway to include student outcomes that are rigorous and include both college and career readiness. In addition, quality pathways have industry support, a developed program of study

(See Appendix A), allow scheduling of a cohort of students, have high expectations for students, provide integrated instruction and various assessments to determine achieved competencies. The five Likert items were categorized to align with the outcomes aligned within this module. Those outcomes focused on pathways, accessibility and beliefs. The data analysis is found in Table 10. The mean score of 4.54 on a 5.0 scale and a standard deviation of .089 reflects the participants' acknowledgement that information regarding their work in supporting quality pathways was related to the Linked Learning coaches' training they received, confirming for this module the training does impact the implementation of Linked Learning. It should be noted that six participants chose to skip the items in this module and two added comments. Both comments indicated that the coaches' training added to knowledge and it was difficult to determine if supporting high quality pathways was a result of the coaches' training.

Table 10

Module 1 Data: Supported Quality Linked Learning Pathways

Question	Mean	Variance	SD
Q1	4.66	0.22	0.471
Q2	4.6	0.24	0.489
Q3	4.53	0.248	0.498
Q4	4.53	0.248	0.498
Q5	4.4	0.24	0.489
Module 1	4.54	.080	.089

Note. $N = 15$.

The next module of the coaches' training provided the Likert scale items to indicate addressing change. The second module, *Coaching Leadership for Significant Change in Educational Practice,* allowed for responses that were focused specifically on coaching practices and goals. Table 11 displays the data for Module 2. Because the mean of 4.03 demonstrates a Likert scale rank of agree with a standard deviation of .244, it shows that the coaching had a positive impact on the implementation of this module of Linked Learning. It should be noted

that question 3 asking about the coaching relationship to organizational change and question 4 regarding outcome driven coaching reflected lower scores and an increased variance. Similarly, to module 1, six respondents skipped the question. One comment referenced the use of the strategies in coaching but clarified responsibilities did not include coaching teachers.

Table 11

Module 2 Data: Coaching Leadership for Significant Change in Educational Practice

Question	Mean	Variance	SD
Q1	4.13	.515	.718
Q2	4.13	.515	.718
Q3	3.8	.96	.979
Q4	3.73	1.12	1.06
Q5	4.4	.64	.8
Module 2	4.03	.059	.244

Note. $N = 15$.

The third module topic was *Supporting College and Career Readiness.* The items associated with this module reflected standards, outcomes and barriers of pathways to meet both college and career preparation for students. Similar, there was a mean of 4.03, variance of .082 and standard deviation of .287. A noted finding in this module was the amount of responses in the neither agree nor disagree indicator, specifically relating to policy of which six answered and common core standards that four answered. Again, six respondents did not answer any Likert items within this module 3. Four comments were posted that referenced a consistent theme of work being attributed to other sources: local professional development, trained prior to coaching and being self-taught. These comments could help to explain the neither agree nor disagree answers. Yet, the data still reflects that this module also supports the coaches' training does impact the implementation of Linked Learning. The data results are posted in Table 12.

Table 12

Module 3 Data: College and Career Readiness

Question	Mean	Variance	SD
Q1	3.86	.648	.805
Q2	3.8	.426	.653
Q3	4.2	.293	.541
Q4	3.8	.56	.748
Q5	4.53	.382	.618
Module 3	4.03	.082	.287

Note. $N = 15$.

Coaching for Equity and a System of Linked Learning was the fourth module within the survey supported by designated Likert items that inquired about equity, access and beliefs. In comparison to the other modules, this one had a lower mean score of 3.95 with a variance of .015 and standard deviation .122 (See Table 13). One respondent answered all questions with strongly disagree which impacted the data results. Three comments were posted in this area. One comment from the individual participant who strongly disagreed with all of the questions stated that an activity was very offensive and had a very negative impact. It was stated that the rest of training was ruined as a result. This could infer that the strong negative perception of the activity was an influential factor in the participant answers for the remaining modules. Similarly to those in previous modules, other comments suggested that the work was being done and it was difficult to qualify if it was a result of the training.

Table 13

Module 4 Data: Coaching for Equity in a System of Linked Learning Pathways

Question	Mean	Variance	SD
Q1	4.06	2.25	.99
Q2	3.93	1.26	1.12
Q3	4.13	.915	.95
Q4	3.86	.915	.95
Q5	3.8	.96	.97
Module 4	3.95	.015	.122

Note. $N = 15$.

Module 5, *Supporting Effective Collaboration and Communities of Practice,* showcased the impact of the coaches' training on working with other educator professionals within Linked Learning. The mean score for this module was 4.10, variance .05 and standard deviation .225 (See Table 14). The majority of responses (52%) for the Likert items responses fell into the agree category. Five respondent's comments within this module re-iterated the comments of the previous modules that the skills in this area were already in process. It was not evident that they could necessarily be attributed to the coaches' training.

Table 14

Module 5 Data: Supporting Effective Collaboration and Communities of Practice

Question	Mean	Variance	SD
Q1	4.53	.248	.498
Q2	4.13	.382	.618
Q3	4.0	.4	.632
Q4	3.93	.86	.92
Q5	3.93	.595	.771
Module 5	4.10	.050	.225

Note. $N = 15$.

The sixth module, *Encouraging a Culture of Continuous Improvement,* indicated actions toward student outcomes, instruction and pathway development that aligned to a culture of improvement. The responses within this module led to a mean score of 4.01, a variance of .043 and a standard deviation of .209 (See Table 15). Three comments carried the same theme of not being able to isolate the coaches' training impact from other professional development on the Likert items. Additionally, only one disagrees response within the module was given. The pattern of 15 participants completing the response and six skipping the question continued within this module.

Table 15

Module 6 Data: Encouraging a Culture of Continuous Improvement

Question	Mean	Variance	SD
Q1	4	.666	.816
Q2	3.8	.426	.653
Q3	3.86	.382	.618
Q4	4	.666	.816
Q5	4.4	.373	.611
Module 6	4.012	.043	,209

The last module, the seventh module, *Providing Target Coaching Services*, inquired to the ability to address the key elements of Linked Learning: instructional practice, pathways (inclusion of academic and technical coursework, work-based learning, and student support within a system of sustainability. Different than the other modules, three questions garnered answers from 16 respondents. Those responses were factored into the mean score of 3.95 with a variance of .040 and a standard deviation of .200. Although the data in this module is not as strong it indicates an agree score for the impact of the coaches' training on Linked Learning implementation. The results of this data are reflected in Table 16.

Table 16

Module 7 Data: Targeted Coaching Services

Question	**Mean**	**Variance**	**SD**
Q1	4.0	.666	.814
Q2*	4.18	.652	.807
Q3*	4.12	.609	.780
Q4*	3.62	.853	.927
Q5	3.86	.782	.884
Module 7	3.95	.040	.200

Note. * = 16 responses

The final open-ended question on equity—What has been the most effective approach used to address equity in your district?—garnered 10 responses. These responses were coded for key words or themes. The two themes that had the most references were the use of data and the

conversations with stakeholders around equity. Additional areas were in recruitment, pathway design to include rigorous coursework and communities of practice. All of the actual comments to this question can be found in Appendix I.

Key Findings

Key findings of the analysis of the data results revealed the following:

- All modules generated a mean score of 3.95 or greater, indicating that the coaches' training does impact the implementation of Linked Learning (See Table 17).
- Out of 21 respondents, 15 completed all aspects of the survey.
- A diverse range of participants as it related to age, school size, region of California and position in the district responded to the survey.
- Five of the participants answered the demographic and school data questions but chose not to answer the survey questions, three of these non-responders answered the comment section indicating they could not solely attribute the coaches' training to implementation.
- All respondents agreed or strongly agreed to the Likert items in the first module regarding pathway quality indicating they are using information to develop pathways in their schools/districts. This was the strongest module in support of the coaches' training to Linked Learning implementation.
- Module 3 and 7 that included coaching practice generated the most neither agree or disagree responses indicating the coaching practices might not be developed further at the districts.
- One outlier that responded to the equity section, strongly disagree, his comments reflected a negative training experience with this module.

- Comments regarding equity inferred that using data and having conversations about equity were most used and important.

Table 17

Coaches' Training Summary Data

Module	Description	Mean	Variance	SD
1	Quality Linked Learning Pathways	4.54	.240	.089
2	Coaching Leadership for Significant Change	4.03	.059	.244
3	College and Career Readiness	4.03	.082	.287
4	Equity in System of Linked Learning	3.95	.015	.122
5	Effective Collaboration and Communities of Practice	4.10	.050	.225
6	Encouraging a Culture of Continuous Improvement	4.01	.043	.209
7	Providing Targeted Coaching Services	3.95	.040	.200

Summary

The purpose of this study was to address the following research question: Does the coaches' training given to education practitioners within Linked Learning districts impact the implementation of the Linked Learning approach? A Likert-type survey methodology was used to collect quantitative data from those who had participated in the coaches' training. There are seven modules within the coaches' training, each aligned with a defined area of Linked Learning. Each module has intended outcomes for the participants to master. The web-based survey instrument was developed from these outcomes and asked participants to answer with a Likert scale if they had used the knowledge, skills and information they had received in coaches' training to address the outcomes of the specific modules. The summative data from these items provided information to determine the response to the research question for this study.

The population for the study was comprised of those educators who have participated in the coaches' training all of whom agreed to the consent to participate. The majority of respondents were female and Caucasian yet 20% were from minority groups. Positions of responsibility ranged from teachers to administrators with work assignments of pathway and district coaches. These positions supported the education level of participants from some college with over 20% holding a doctoral degree. All of three regions of California: northern, central and southern were depicted in the survey and districts from 5,000 students to over 100,000 students were represented. Every district but one had adopted Linked Learning as a district initiative.

The web-based survey link and supporting information was sent both directly to the researchers' contacts who were associated with Linked Learning and to the two third party coaching facilitator who agreed to send out the information. Due to the confidentiality of the coaching participants list, it could not be shared with the researcher. Both the lack of access to the participant list and the anonymity of the survey created a challenge for the researcher to control the distribution and follow up. Approximately 200 educators have participated in the coaches' training since 2009. Yet, it is unknown how many participants the information reached. The researcher took the following efforts to increase the population: researched contact links and sent information to those contacts, sent reminders to Linked Learning communities, posted the request to participate internet based coaches' community and networked with school administrators through professional development sessions. Additional technology and timing challenges impacted the attempts to increase the population. The firewalls of public education districts led to undeliverable responses and an issue with the hyperlink embedded in the e-mail was not discovered until the second week of data gathering. Spring break for several schools

coincided with survey requests to participate. As a result, 21 educators responded to the survey. Further summary of the findings and discussion of implications will be presented in Chapter 5.

Chapter 5: Discussion, Conclusions, and Recommendations

This chapter will summarize the research within three key areas. First, the study will be examined in the discussion section. Next, the conclusions and implications from the survey data in Chapter 4 will be discussed. The final section will provide information on the impact on policy and practitioners and recommendations for future research. Central to this study was the increased level of knowledge and skillsets needed for the workforce of the 21st century and its impact on education. The Linked Learning approach had been identified as addressing the elements needed for these new requirements by preparing all students for both college and career and integrating the new skillsets needed to be successful in the workforce of this century. Implementing a change from a two track education system that identified students for either college or work upon graduation from high school to the Linked Learning approach that addressed all students being prepared for postsecondary education and allows for the development of the new skillsets of this century would require a shift in beliefs, instruction and systems (Linked Learning Alliance, n.d.b). Those local education agencies, organizations and policy makers that supported the Linked Learning approach understood the need to invest in professional development coaches' training to put into practice the four core elements of Linked Learning: rigorous academic and technical coursework, student support systems and work-based learning opportunities. The purpose of this study was to assess the impact of the coaches' training as a professional development model to implement the Linked Learning approach by asking the research question: Does the coaches' training given to education practitioners within Linked Learning districts impact the implementation of the Linked Learning approach?

Key to the discussion from the Chapter 2 literature review is the documentation of several reports of the demand for workers to have education beyond high school, high level of technical

expertise and the ability to compete in a global marketplace (Darling-Hammond, 2010). Several studies indicated all stakeholders, including parents, teachers and business, understood the need for postsecondary education. The literature review studies that provided data on academic and 21st century skill attainment indicated that many students fell behind their counterparts in other countries and often were not prepared for the rigors of higher education in the United States (National Center on Education and the Economy, 2008). Although controversial, the new Common Core Standards assesses both theoretical knowledge and the relevance of the application of that knowledge to allow for a consistent national standard that all students are assessed on. The research on programs, such as the California Partnership Academies, that integrate academic and relevant technical skills showed that students, specifically those underrepresented, were more prepared for college and the workforce (Elliott et al, 2002). Linked Learning is approach that incorporates these best practices of both academic and technical knowledge. Additional elements of Linked Learning are work-based learning and students support systems. Within the literature review, the studies on Linked Learning showed progress in preparation for college and the development of professional skills. Coaching allows for a facilitation of guided practice by an adult peer and/or consultant. The benefits of the use of education reform strategies that have used coaching to improve instructional practice and student achievement was found in Chapter 2. Highlighting the understanding of adult learning theory as it related to coaching was central to this section. Working with another adult who can set aside biases and assumptions has proven to be successful in improving student achievement. Yet, due to the relatively new approach of using coaching in education minimal longitudinal studies were evident in the literature.

Discussion

The study set out to address the impact of the coaches' training on Linked Learning implementation. A quantitative survey design was used to assess the competencies/outcomes within each of the seven areas of the training. The coaches' training is comprised of these seven areas that are learning modules. Each module is aligned with the four core elements and guiding principles of Linked Learning (ConnectEd, 2014. Participants responded to five Likert type items within each module, a total of 35 items, and a summative scale for the individual module was calculated. A Likert Scale with a range from 1-5, number one indicated strongly disagree and number five indicated strongly agree, was assigned for each of the modules from the item responses. An additional area within each module was displayed in the survey for individual comments. At the end of the survey a open-ended question that inquired about how districts were addressing equity was asked.

One can ascertain from the data results compiled from the surveys there were several areas of interest within the study's demographics, process and responses that led to further discussion. Given the population eligible for this study, approximately 200 educators have taken the training over a span of six years, it was expected that there would be a minimum of 30 responses to the survey. Despite repeated attempts and employing various means, the actual number of responses was 21 within a 4-week window. This accounted for approximately 10% of the total population that have taken the training and 34% of the total who were contacted. The anticipated number of a minimum of 30 respondents was not achieved due to a variety of issues. The main issue was the reliance on third party distribution of the survey link and the inability to confirm the total of the distribution. The survey information was sent out directly to 31 contacts and indirectly to approximate 30 for a total of 61. The direct contacts were from the researchers

networks and one of the facilitators. In Chapter 3 a mean response rate for web-based survey was referenced as 5.97 days with an increase response rate of following up with mailing the information (Wright, 2005). Due to the lack of access to participant information, the mailer was not an option. Other challenges to response rate were technology issues caused by network security within public education and the timing of the distribution of the survey during school break. Increasing the time frame for conducting the study might have led to increased participation with more thorough collaboration on process between the researcher and the third party facilitators. Future studies with the intent to use this or other populations within the Linked Learning network will have to address the obstacle of the researcher's inability to have direct access to the participant's contact information.

Of the 21 respondents, there were fifteen respondents who completed all aspects of the survey; six completed other information including the comment section. The comment section documented that respondents could not attribute the knowledge that was learned in the coaches' training solely to the Likert items and thus did not answer the questions. This could be significant. The survey inquired about Linked Learning but did not gather information on level of coaching expertise or additional professional development in coaching prior to taking the Linked Learning modules. Furthermore, there were comments that inferred that coaching professional development was ongoing in the districts but not necessarily around Linked Learning. The actual comments can be found in Appendix I. This also might have led to confusion regarding the Likert items that asked specifically if the Linked Learning coaches' training had been used for implementation.

Key findings, per the responses on the survey, the majority of participants can be identified as female (84.3%) and Caucasian (73.8 %). These numbers are only slightly higher

than the gender and ethnic distribution of educators in California where females make up 74% and Caucasian/White make up 65% of all educators (CDE, 2014). Their education level ranged from some college to doctorate degree. Most educators worked at the district level where Linked Learning had been confirmed as a district initiative. The majority had taken coaches' training 2 to 3 years ago. They represented districts from all regions of California with student populations between 5,000-100,000 plus. Although the response rate did not meet the anticipated projection, these demographics represent a cross section of people and districts. The data collected was not from a homogenous group which attributed to the implications of the results on a larger scale. Yet, due to the minimal responses it did not allow for the researcher to desegregate the data further to look at relationship of variables to the responses. More respondents would have increased the population of the study and possibly provided additional information through a regression analysis. It is noted that the limitations that were presented in the first chapter in regards to response rate and process did impact the survey.

Implications

The Likert scale computed from the data collection for each of the seven modules ranged from 3.95-4.54, falling between the agree (4.0) and strongly agree (5.0) scale. The data supports the statement that the coaches' training had a positive impact on the implementation of the Linked Learning approach which could have implications for both coaching as a practice for reform efforts and the focus Connect Ed and the Center for Powerful Public Schools puts on coaching for implementation and sustainability of Linked Learning within districts. The data revealed that those who participated in the coaches' modules did use the information they had gained. A review of the scores for the modules is shown in Table 18.

Table 18

Mean Scores of Modules

Module	Mean	Agree	Strongly Agree
Module 1	4.54		x
Module 2	4.03	x	
Module 3	4.03	x	
Module 4	3.95	x	
Module 5	4.10	x	
Module 6	4.01	x	
Module 7	3.95	x	

The seven modules within the training—*Supporting a System of Quality Linked Learning Pathways, Coaching Leadership for Significant Changes in Educational Practice, College and Career Readiness, Coaching for Equity in a System of Linked Learning Pathways, Supporting Effective Collaboration and Communities of Practice, Encouraging a Practice of Continuous Improvement,* and *Providing Targeted Coaching Services*—provided a comprehensive approach that gave participants the rationale of the approach and the strategy of coaching. The literature review cited studies that attributed the success of coaching in both business and education on the coach having a broad understanding of issues, organizations and policy that go beyond classroom or content knowledge (Brown et al., 2005). The implication to be derived from the literature review and the data from the research for education supports professional development that utilizes coaching as a strategy should address the rationale and organizational issues in a comprehensive way. This would aid in putting forth the appropriate conditions for coaching to be effective in an organization. The balance of creating the appropriate conditions for coaching within an organization to be understood and agreed upon by all levels of staff with the time and investment of in-depth training on the art of coaching can be challenging. The results of the survey, the posting of comments and a follow-up communication to the researcher from participants who had in-depth knowledge of coaching provided understanding of this issue and

implications for practice. There were indicators that the Linked Learning training did not go into enough depth on the practice of coaching. The responses in module two regarding coaching for change generated the highest number of disagree responses. Module 7 on targeted coaching services generated the highest number of neither agree or disagree responses. Both of these modules concentrated on the coaching practice and strategy. It could be inferred that educators who do not work in districts who have a strategic plan for plan for coaching with fidelity do not identify strengthening and using their coaching skills after they have completed the training.

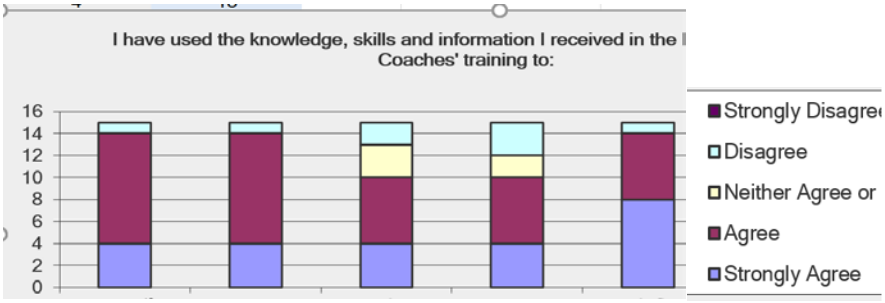

Figure 6. Module 2.

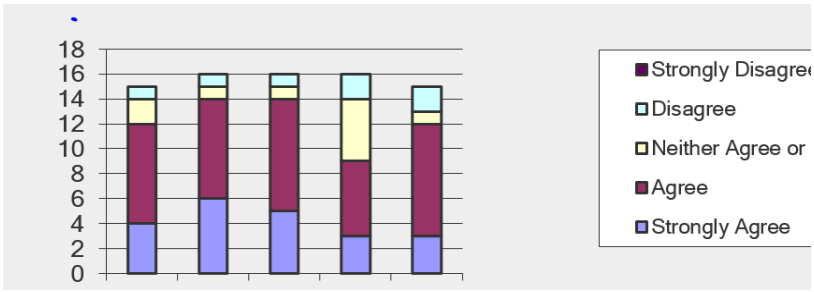

Figure 7. Module 7.

The literature review corroborated the belief as it cited several isolated instances of best practices in coaching that improved instruction. But for coaching to be successful and sustainable a culture of coaching structure and processes has to support it. The implication for Linked Learning is to assess the balance in coaching of Linked Learning principles with the development of an extensive coaching culture within schools with all stakeholders that builds capacity.

Additional evidence is found in the data from the first module which had the highest Likert Scale of 4.54 with all responses indicating agree or a strongly agree ranking. The content of this module involved college and career, accessibility, messaging, outcomes and design. The majority of the participants had taken the coaches' training over 2 years ago, from which could be inferred that this is the module they are most comfortable with and use the most in their roles as coaches' within Linked Learning districts. The implication is that the relevance of Linked Learning content could be used and was of interest to the practitioners is important in structuring professional development. Relevance is one of the six core components of Malcolm Knowles's' (2005) work on andragogy or adult learning and adults are more interested in subjects that have immediate relevance to them.

Recommendations

This research study provided an opportunity to gather data on a coaches' training that was focused on the implementation of the core elements and guiding principles of Linked Learning. Because Linked Learning is a relatively new comprehensive approach that implements a strategy for education reform to prepare all students for college and career options in the 21st century, research in the area is limited. Any further study on Linked Learning would be beneficial to the education community.

The intent of this study was to assess the impact of the Linked Learning coaches' training on the implementation of the Linked Learning approach. The data results of this study showed the training to have a positive impact. Although the response rate was less than anticipated, the results provided a foundation for further research in the area of both coaching and Linked Learning. Techniques to employ additional means to increase respondents such as requesting approval for sharing information at the time of registration for the training should be addressed

in future research. The range of categories of demographics and district characteristics was represented in the study but did not allow for analysis of variables. Research on certain groups within the study would be beneficial to addressing the needs and impacts of specific demographics. The following questions could support the inclusion of population demographics.

- Was there a correlation between position and responses?
- Did the demographics impact the outcomes of specific modules?
- Was there a correlation between the cohort and the implementation of training? (Variables, length of time, facilitator of training, cohort demographics, etc.)

Another area of study to further research would be to address the structure of the training to the frameworks of adult learning. As discussed in the literature review, effective coaching that builds capacity in education reform should involve a strong understanding of adult learning theory (Fullan, 2008). Adults move from dependency to be self-directed, have life experiences that allow for learning, are more problem centered versus subject centered, are more conscious of internal incentives to learn, are prone to learn when there is immediate relevance and are involved in their own learning. Comments that were input into the survey showed some frustration of the training activities and an acknowledgment that coaching knowledge was gained from other venues. Inquiring on coaching experience prior to participating in Linked Learning training would have addressed these comments. Providing data for the coaching facilitators on coaching depth of knowledge would be beneficial and an opportunity for future research. Further study in the ways coaches' partnerships specific to the Linked Learning training are essential to the expansion and quality of Linked Learning is an area to research. This would allow for the rationale of the importance of the Linked Learning coaching modules and alignment to other coaching initiatives. In addition, the degree of technical assistance that the training facilitators

provide to supplement the coaches' training modules and their impact on Linked Learning implementation is another area to measure for further research. The assessment of whether continuing support of the coaching process for participants once the training is completed would impact the implementation of Linked Learning and add to sustainability of the approach could be of value to educators.

It was recommended at the start of the data collection for this study, that the researcher participate in the coaches' training. For this study, there was not an option to enroll in the training due to scheduling conflicts. But access to materials, resources and colleagues who had participated in the training was available to the researcher. It was also determined that participation in the training could potentially lead to bias in the reporting of the data. From this study, it would be recommended for further research that the researcher was a participant. It would allow for an in-depth knowledge of how the trainings addressed adult learning theory and the activities that supported the learning outcomes.

Because the intent of Linked Learning is to change instruction and outcomes for all students, recommendations for additional research would be in the area of how the Linked Learning coaches' training impacts student outcomes. Although the SRI studies provided data on student outcomes related to Linked Learning, the research on the correlation of the coaches' training to these outcomes was lacking. The literature review cited the training on having an impact on the academic and technical coursework in year two of the district initiatives but did not reference coaching in further annual studies (Guha et al., 2014). Other studies that pursued the area of specific quantitative and qualitative data such as grade point average, college acceptance, engagement, self- directed learning and confidence to the coaches' training would be valuable.

An additional area recommended for study would be to examine one cohort or compare cohorts of the training. The use of cohorts would allow for the control of variables such as the same facilitator, location, material covered and coaching peers. For this study, the participants came from different cohort groups and within that time some of the instructional techniques and resources had changed. In addition, the trainers were not consistent across all cohorts. The concentration on one or more cohorts could allow for a qualitative or mixed-methods review.

The final open-ended question regarding equity added to the discussion. Data from this question highlighted examining data amongst stakeholders and having conversations around equity as two main themes. Both of these areas could lead to further research, specifically within the Linked Learning communities.

Summary

Ultimately, the goal of Linked Learning is to change instruction and to provide opportunities for all students to be prepared for college, career and life. The relatively new education reform strategy of Linked Learning integrates four core elements, rigorous academic coursework, high level technical coursework, student support systems and a continuum of work-based learning experiences. There has been an investment in coaches' training for educators who are in districts that support and/or adopted the Linked Learning approach. This study touched the surface of the impact of the coaches' training on these districts. It was found from the research that the coaches' training does have a positive impact on Linked Learning. But continued research to control the variables, increase the population and further identify other coaching experience is recommended. It is the researcher's intent that other studies will examine Linked Learning and how the approach could inevitably change many aspects of schools and prepare all students for a rapidly changing global economy.

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APPENDIX A

Program of Study Worksheet

California Department of Education

Career and College Transition Division
2008-2012

Program of Study Worksheet

This Program of Study should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

Industry Sector:

Career Pathway:

Program of Study:

Signature of Secondary Administrator:

Signature of Postsecondary Administrator:

Date:

This Program of Study is a formalized Tech Prep articulated pathway ☐ **Yes** ☐ **No**

LEVELS								
GRADE	English/ Language Arts	Math	Science	Social Studies	Career Technical Education Courses	Other Required Courses or Recommended Electives	SAMPLE Occupations Relating to this Pathway
SECONDARY							
9							Occupations Requiring Less Than a Baccalaureate Degree
10							
11							
12							Occupations Requiring a Baccalaureate Degree
	Articulated Dual Credit courses may be taken/moved to the secondary level for articulation/dual credit purposes.						
POSTSECONDARY							
Year 13							
Year 14							Industry recognized certifications, licenses, or Credentials related to this pathway
Year 15							
Year 16							

APPENDIX B

Linked Learning Coaching Modules and Outcomes

Coach Training Learning Outcomes

Coach Certification:

After completing a coach development plan and all training modules, a coach candidate will work with a mentor for six-months while providing coaching services. After receiving a letter of recommendation from the mentor and primary client the candidate will be Linked Learning coach certified by ConnectEd and the Los Angeles Small Schools Center.

Certified Linked Learning coaches can choose to be listed in an online directory available to potential clients through the ConnectEd and Los Angeles Small Schools Center websites.

Training Modules 1-7

1. Supporting a System of Quality Linked Learning Pathways

Linked Learning Coaches:

- Share the belief that all high school graduates should be prepared for both college and career and actively promote systems of high quality Linked Learning pathways that are accessible to, and support the success of, all students
- Use agreed upon language and deliver a consistent message about Linked Learning
- Employ the coaching model to identify client outcomes and appropriate coaching actions
- Advocate for the pathway design, structures, outcome-driven curriculum, performance assessments and unique learning and teaching practices that characterize the Linked Learning approach
- Utilize *Linked Learning Quality Criteria* to establish common understanding of pathway quality

- Identify and apply the appropriate tools for conducting assessments, determining gaps and developing implementation or action plans at district, site and/or pathway level

2. Coaching Leadership for Significant Changes in Educational Practice

Linked Learning Coaches:

- Distinguish among various coaching approaches and models
- Assess client needs, set coaching goals and align coaching strategies to support substantial change in practice required to implement and sustain quality Linked Learning pathways
- Demonstrate an understanding of organizational change and change theory when providing transformational coaching
- Employ a variety of effective coaching strategies
- Recognize the different clients that are served in the Link Learning approach and collaborate with all support providers to achieve a cohesive message and confluence of efforts
- Fulfill the duties and responsibilities of the specific coaching role assigned
- Work within a coaching community to codify and apply effective coaching strategies by sharing effective practices, providing peer consultancy in milieu of trust, maintaining confidentiality and modeling professional collaboration
- Develop an outcome driven coaching plan and submit analytical coaching reports

3. College and Career Readiness

Linked Learning Coaches:

- Assist in crafting well-conceived graduate and pathway outcomes that represent college and career readiness and backwards map them to grade level benchmarks
- Assist in designing or reviewing pathway programs of study to assure outcomes will be addressed and assessed
- Offer strategies for aligning outcomes across district, site and pathway that reflect the College and Career Readiness and align to Common Core Standards
- Stimulate reflection to surface policy issues or constraints that might impact optimal pathway design and assessment practices
- Recognize well-designed, rigorous performance assessments and encourage the use of calibrated common rubrics for graduate and pathway outcomes
- Offer sample and resources for providing a range of targeted student support services

4. Coaching For Equity in a System of Linked Learning Pathways

Linked Learning Coaches:

- Function within a coaching community that supports equitable access for all students and builds and sustains equitable practices
- Continue to be aware of personal attitudes, beliefs and behaviors that may influence the ability of a coach to advocate for equity in Linked Learning programs
- Have access to resources and promising practices based on the work of the Linked Learning Equity, Access and Choice (EAC) Advisory Committee to promote equity, access and choice, as well as, interrupt patterns of inequity that may exist in pathways, schools and districts
- Strengthen the coaching community of practice to support equity, access and choice
- Increase ability to frame Discourse II coaching conversations

- Expand capacity to effectively use tools, resources and strategies that address inequity

5. Supporting Effective Collaboration and Communities of Practice

Linked Learning Coaches:

- Nurture continual refection on the effectiveness of team collaboration
- Model effective facilitation and share samples and resources for conducting productive meetings with fully participating teams
- Model effective facilitation and share protocols and resources for the productive collaboration of fully committed teams
- Employ the Communities of Practice Continuum to build capacity to prepare all Linked Learning students for both college and career
- Encourage distributed leadership across collaborative structures in a system of Linked Learning pathways
- Recognize the strengths and challenges of team they support offer observations for team reflection
- Encourage leadership and pathway communities of practice to employ the Linked Learning Behaviors of Learning and Teaching as a gauge of effectiveness
- Encourage communities of practice to offer every Linked Learning student a continuum of work-based learning experience and to provide targeted, just-in-time support services

6. Encouraging a Culture of Continuous Improvement

Linked Learning Coaches:

- Support self-assessments and gap analysis in current practice using appropriate tools
- Nurture attitudes and promote practices that support a culture of continuous improvement where the Linked Learning approach is a response to specific desired outcomes

- Assist in determining the data that might support the self assessment process, implementation planning and the monitoring of pathway effectiveness
- Model the use of data driven dialogue focused on student outcomes at every level throughout the district
- Encourage the establishment of systems of communications that informs all stakeholders about the indications of college and career readiness
- Promote the engagement of a broad base of community, family, education and industry partners in determining appropriate actions or interventions to continually improve student outcome**s**

7. Providing Targeted Coaching Services (District, Site Leaders, Pathway)

Coaching District Leadership - District Coaches:

- Support systems level self- assessment, planning and implementation
- Promote policies, practices and procedures that support and sustain an equitable system of linked learning pathways
- Encourage the shared governance of broad-based coalition
- Emphasize effective linked learning instructional practices, work-based learning and a balanced systems of assessment and accountability
- Offer resources and assist in obtaining technical assistance need to implement and support work-based learning and a coordinated system of student support services that promote college and career readiness for all Linked Learning students
- Promote confluence of efforts that sustain a system of quality linked Learning pathways

Coaching Site Leadership - Site Leadership Coaches:

- Support equitable pathway design and advise on the structures and circumstances that promote cohort scheduling and collaborating communities of practice
- Promote transformational and distributed leadership in Linked Learning schools
- Encourage instructional leadership consistent with the Linked Learning Behaviors for Learning and Teaching
- Advise on building community partnerships and supporting work-based learning
- Provide samples and tools for discussing the implications of formative and summative performance assessments within a balanced assessment systems

Coaching Pathway Leadership - Pathway Coaches:

- Advise on the design of equitable pathway programs of study that prepare all students for college and career
- Support pathway teams self-assessing and developing actions plans to address the Quality Criteria for Linked Learning Pathways
- Employ the *Community of Practice Continuum* to support a culture of continuous improvement
- Promote outcome-driven highly engaging integrated curriculum and authentic performance assessments
- Employ the *Behaviors for Teaching and Learning Framework* to assist COPs in improving instruction and serving all students
- Use the *Work-based Learning Guide* to promote a progressive sequence of quality work-based learning experiences for all students

- Provide samples and tools for discussing the implications of formative and summative performance assessments within a balanced assessment system
- Share samples, strategies and resources for providing effective student support services to monitor student progress toward the outcomes and provide required interventions

(Retrieved from http://www.connectedcalifornia.org/training_modules)

APPENDIX C

Survey Questions

Linked Learning Coaches Training

Welcome the Linked Learning Coaches Survey

Thank you for participating in this survey. Your feedback is important to this research.

The purpose of this research project is to examine the impact of the Linked Learning coaches training on the implementation of Linked Learning. This is a research project being conducted by Elizabeth McKinstry, a Doctoral Candidate at Pepperdine University. You are invited to partake in this research project because you have taken part in the Linked Learning coaches training.

Your decision to participate or decline participation in this study is completely voluntary and you have the right to terminate your participation at any time without penalty. You may skip any questions you do not wish to answer. If you do not wish to complete this survey just close your browser.

The procedure involves filling an online survey that will take approximately 15-20 minutes. Your responses will be confidential and identifying information such as your name, email address or IP address will not be collected. All data is stored in a password protected electronic format. To help protect your confidentiality, the surveys will not contain information that will personally identify you. Further information on Survey Monkey's privacy policy can be found on this link: https://www.surveymonkey.com/mp/policy/privacy-policy/

Although your participation in this research may not benefit you personally, it could help us to further understand coaching and Linked Learning. There are no risks to individuals participating in this survey beyond those that exist in daily life.

This research has been reviewed according to Pepperdine University IRB procedures for research involving human subjects. If you have questions about this project, your rights as a participant in this study or any concerns or complaints, please contact Pepperdine University's Institutional Review Board: gpsirb@pepperdine.edu.

Please print a copy of this consent form for your records, if you so desire.

1. Electronic Consent: By clicking on the agree button you have read the above information, you voluntarily agree to participate and you are at least 18 years old.
If you do not wish to participate in the survey, please decline particpation by clicking the disagree button.

- ◯ Agree
- ◯ Disagree

1

Linked Learning Coaches Training

Demographics

2. What is your ethnicity? (Please select all that apply.)

- [ ] American Indian or Alaskan Native
- [ ] Asian or Pacific Islander
- [ ] Black or African American
- [ ] Hispanic or Latino
- [ ] White / Caucasian
- [ ] Prefer not to answer
- [ ] Other (please specify)

3. What is your gender?

- ◯ Female
- ◯ Male

4. What is your age?

◯ 18 to 24 ◯ 25 to 34 ◯ 35 to 44 ◯ 45 to 54 ◯ 55 to 64 ◯ Over 65

5. What category best identifies your school/district?

	Urban	Rural	Suburban
District	◯	◯	◯
School Site	◯	◯	◯

Please add any additional comments that would help to further describe the area your school or district serves

2

6. Where is your school/district located?

- ◯ Northern California
- ◯ Central California
- ◯ Southern California

Please add any additional comments that would help further describe the area your school and district serves

7. What is the enrollment of the school?

- ◯ 1-500
- ◯ 501-999
- ◯ 1000-2999
- ◯ 3000 +
- ◯ Not applicable, do not work at a school site

8. What is the enrollment of your district?

- ◯ Under 5000
- ◯ 5001-10000
- ◯ 10001-20000
- ◯ 20001-30000
- ◯ 30001-50000
- ◯ 50001-100000
- ◯ Over 100000
- ◯ Unknown

9. What is your current position? (Select all that apply)

- [ ] District Administrator
- [ ] School Site Administrator
- [ ] LL Pathway Teacher
- [ ] LL Pathway Coach
- [ ] Core Academic Teacher
- [ ] CTE Teacher
- [ ] Other (please specify)

10. Length of time in current position

- ◯ 0-5 Years
- ◯ 6-10 Years
- ◯ 11-15 Years
- ◯ 16-20 Years
- ◯ Over 20 Years

11. What is the highest level of education you have completed?

- ◯ Graduated from high school
- ◯ Some College
- ◯ Completed bachelor's degree
- ◯ Completed master's degree
- ◯ Completed doctorate degree
- ◯ Other (please specify)

12. Linked Learning: How long have you worked in a Linked Learning district?

- ◯ 1-3 Years
- ◯ 3-5 Years
- ◯ Over 5 Years

13. Has your district adopted Linked Learning as a district initiative?

- ◯ Yes
- ◯ No

Please enter any additional comments

14. When did you receive coaches training?

- ◯ 1 year ago
- ◯ 2 to 3 years ago
- ◯ 3+ to 5 years ago
- ◯ More than 5 years ago

Please enter any additional comments

Linked Learning Coaches Training

Coaches Training Information

15. I have used the knowledge, skills and information I received in the Linked Learning Coaches' training to:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Share the belief that all high school graduates should be prepared for both college and career	○	○	○	○	○
Actively promote systems of high quality Linked Learning pathways that are accessible to all students	○	○	○	○	○
Actively promote system of high quality Linked Learning pathways that support the success of all students	○	○	○	○	○
Communicate consistent message about Linked Learning	○	○	○	○	○
Advocate for pathway design that includes student outcomes and performance assessments	○	○	○	○	○

Please add any additional comments you think would be of importance to the items listed above.

6

16. I have used the knowledge, skills and information I received in the Linked Learning Coaches' training to:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Assess client needs and set coaching goals	○	○	○	○	○
Align coaching goals and strategies to support change in practice	○	○	○	○	○
Provide transformational coaching that leads to organizational change	○	○	○	○	○
Develop an outcome driven coaching plan	○	○	○	○	○
Apply effective coaching strategies by sharing effective practices	○	○	○	○	○

Please add any additional comments you think would be of importance to the items listed above.

7

17. I have used the knowledge, skills and information I received in the Linked Learning Coaches' training to:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Develop a high school graduate profile that represents college and career readiness outcomes	☐	☐	☐	☐	☐
Offer strategies to align outcomes that align with Common Core Standards	☐	☐	☐	☐	☐
Offer strategies to align outcomes that integrate college and career readiness	☐	☐	☐	☐	☐
Identify policy issues that impact optimal pathway design	☐	☐	☐	☐	☐
Identify barriers to pathway implementation	☐	☐	☐	☐	☐

Please add any additional comments that you think would be of importance to the items listed above.

8

18. I have used the knowledge, skills and information I received in the Linked Learning Coaches' training to:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Function within a coaching community that supports equitable access for all students in Linked Learning programs	☐	☐	☐	☐	☐
Strengthen coaching community of practice to support equity, access and choice of courses	☐	☐	☐	☐	☐
Increase awareness of personal attitudes, beliefs and behaviors that could influence your ability to advocate for equity in Linked Learning programs	☐	☐	☐	☐	☐
Use tools, resources and strategies that address inequity	☐	☐	☐	☐	☐
Address patterns of inequity that exist in pathway, schools and district	☐	☐	☐	☐	☐

Please add any additional comments that you think would be of importance to the items above.

9

19. I have used the knowledge, skills and information I received in the Linked Learning Coaches' training to:

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
Reflect on the effectiveness of team collaboration	○	○	○	○	○
Model effective facilitation for the productive collaboration of teams	○	○	○	○	○
Utilize the Community of Practice Continuum to prepare all Linked Learning students for college and career	○	○	○	○	○
Facilitate a distributed leadership to work collaboratively in a system of Linked Learning pathways	○	○	○	○	○
Use the Linked Learning behaviors of learning and teaching to measure effectiveness	○	○	○	○	○

Please add any additional comments that you think would be of importance to the items above.

10

20. I have used the knowledge, skills and information I received in the Linked Learning Coaches' training to:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Use appropriate tools to conduct a self assessment and gap analysis in current instructional practices	☐	☐	☐	☐	☐
Use data to monitor pathway effectiveness	☐	☐	☐	☐	☐
Model use of data driven dialogue to address student outcomes at all levels throughout the district	☐	☐	☐	☐	☐
Engage stakeholders to determine actions to improve student outcomes	☐	☐	☐	☐	☐
Promote practices that support a culture of continuous improvement	☐	☐	☐	☐	☐

Please add any additional comments that you think would be of importance to the items above

11

21. I have used the knowledge, skills and information I received in the Linked Learning Coaches' training to:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Emphasize effective Linked Learning instructional practices that includes outcomes and assessments	☐	☐	☐	☐	☐
Support pathway teams action plans to address quality criteria for Linked Learningpathways	☐	☐	☐	☐	☐
Promote a progressive sequence of quality work based learning experiences for all students	☐	☐	☐	☐	☐
Provide samples and resources to develop strategies for student support services that allow students to access and complete Linked Learning pathways	☐	☐	☐	☐	☐
Promote policies, practices and procedures that support and sustain an equitable system of Linked Learning pathways	☐	☐	☐	☐	☐

Please add any additional comments that you think would be of importance to the items above

22. What has been the most effective approach used to address equity in your district?

12

APPENDIX D

E-mail Consent

Hi Betsy,
I hope all is well with you.
If you would like to include the Center coaches I will be happy to ask my colleagues if they would like to participate.
Please let me know if this might work for you.
Thank you,
Talma

On Oct 21, 2015, at 9:40 AM, Betsy McKinstry <[redacted]> wrote:

Daphannie,
Thank you for the response. I understand that you would not be able to share your trainee list with me and in retrospect this should not have been my request. I appreciate that you will help share the link to the survey. I will be wanting to survey those who have completed the training and align some of the survey questions in your modules to assess if action was taken on those questions. I am also pulling other survey questions from professional development and coaching research. I am looking at using those who participated from [redacted] as a pilot to revise and/or clarify any questions prior to sending out to the sample population.

I do plan on continuing the research on Linked Learning after I finish my dissertation and look forward to furthering the efforts in preparing all students for both college and career.

I will keep you and Talma updated on my progress.
Betsy McKinstry
Director
College and Career Division
[redacted]High School District
[redacted]
Twitter[redacted]
<image001.png>
"Innovation opportunities do not come with the tempest but with the rustling of the breeze."
Peter Drucker

From: Daphannie Stephens [mailto:[redacted]]
Sent: Friday, October 16, 2015 10:30 PM
To: Betsy McKinstry
Cc: 'Rob Atterbury'; 'Brad Stam'; 'Roman Stearns'; 'Talma Shultz'; 'Aujinel Verdon'; 'Anna Salomone'
Subject: RE: Information for Research

Hi Betsy,

I apologize for the delay in response. Thanks so much for your interest in centering your dissertation around coach training! There is so much we could learn from your findings and this kind of in-depth study particularly because of how well positioned you are in the work. You will have a beneficial level of insight.

As you may know, we have over 200 people from multiple positions in education who have attended coach training. Because we ask so much of them in terms of class attendance, work assignments and certification requirements, we are mindful of additional requests. We want to be respectful of their time. Since we are in the middle of planning to roll out related surveys of our own, we are reluctant to add on additional research requests from others. As you can imagine when you are providing a service to clients, there is a fine line between polling to increase the quality of services and engaging them as research subjects. Most clients are reluctantly willing to answer brief survey questions and are adverse to more in-depth research due to time constraints. Since we have moved from being an organization that provides grants and offers coach training for free to becoming an organization that asks participants to pay for training, we must treat participants as clients and not assume they have signed on for anything other than the service they requested.

However, this research is important and we have seen one or two dissertations tackle it successfully. Although they did not contact the community at large, they reviewed implementation outcome data in specific districts and/or reached out to local people in their area to interview.

I see that you are listed as a member of Cohort 10 with the Center for Powerful Public Schools. Your insight on how the coach training assignments (and the feedback you received on them) have increased your own ability to be impactful will be invaluable. It's also clear that a s a Director for College and Career, you are a leader in the work. There have been a number of people from [redacted] who have attended coach training. This is a great opportunity to survey and interview people from your district to find out what happened when their training came together with opportunities to coach Linked Learning implementation in their daily practice. This could benefit both the district's ability to support t hem and your personal research for the field.

Please feel free to use the Coaching Model as a framework for your study on impact. However, it's important to remember the model is a part of a suite of analysis tools that help coaches determine next steps. The coaching model on its own may prove insufficient to determine the impact of coach training. You may want to consider the outcomes of each training module and the related tools/activities to see how well they prepare participants to coach other adults and in

turn how well those other adults are able to impact student achievement because of the coaching support they've received.

Although sharing participant's contact information wouldn't be appropriate, if you have a webpage link or a flier we could post, we'd be happy to let people contact you who may be interested in participating in your research. In return, we'd appreciate being able to review and learn f rom your findings. Please don't hesitate to let us know if you have an additional questions or requests.
All the best,
-Daphannie

From: Rob Atterbury [mailto:[redacted]]
Sent: Monday, October 12, 2015 11:28 AM
To: 'Daphannie Stephens'
Cc: Betsy McKinstry; Aujinel Verdon
Subject: FW: Information for Research

Daphannie,

I met Betsy McKinstry last week in Visalia and she is working on her dissertation focused on the impact of the Coaches' training in preparing students for both college and career. She had reached out to Anna Salomone and Aujinel in the attached e-mail requesting permission to reach out to the coaching community. Can you review the request and get back to Betsy?

Rob Atterbury
Director, District and Regional Support
ConnectEd: The California Center for College and Career
2150 Shattuck Ave. Suite 1200
Berkeley, CA 94704
[redacted]
www.connectedcalifornia.org

From: Betsy McKinstry [mailto:[redacted]
Sent: Monday, October 12, 2015 9:54 AM
To: [redacted]
Subject: FW: Information for Research

Rob,
Thank you for taking a few minutes to speak with me last week in [redacted] regarding my dissertation. I have attached the previous e-mails I have sent regarding permission for my study. I appreciate any help you can give me in connecting me with the appropriate person to get approval. As mentioned, I have discussed this with Talma on several occasions and she is aware of my study and work.

APPENDIX E

IRB Approval Letter

Pepperdine University
24255 Pacific Coast Highway
Malibu, CA 90263
TEL: 310-506-4000

NOTICE OF APPROVAL FOR HUMAN RESEARCH

Date: February 29, 2016

Protocol Investigator Name: Elizabeth McKinstry

Protocol #: 16-02-202

Project Title: The Impact of Coaches' Training on Implementation of the Linked Learning Approach

School: Graduate School of Education and Psychology

Dear Elizabeth McKinstry:

Thank you for submitting your application for exempt review to Pepperdine University's Institutional Review Board (IRB). We appreciate the work you have done on your proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations 45 CFR 46.101 that govern the protections of human subjects.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an amendment to the IRB. Since your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite the best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete written explanation of the event and your written response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* at community.pepperdine.edu/irb.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval. Should you have additional questions or require clarification of the contents of this letter, please contact the IRB Office. On behalf of the IRB, I wish you success in this scholarly pursuit.

Sincerely,

Judy Ho, Ph.D., IRB Chairperson

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives

APPENDIX F

CITI Course Completion Certificate

- **Report ID:** 7665484
- **Completion Date:** 02/08/2016
- **Expiration Date:** N/A
- **Minimum Passing:** 80
- **Reported Score*:** 93

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Research Misconduct (RCR-Basic) (ID: 16604)	02/03/16	5/5 (100%)
Data Management (RCR-Basic) (ID: 16600)	02/07/16	5/5 (100%)
Authorship (RCR-Basic) (ID: 16597)	02/08/16	4/5 (80%)
Peer Review (RCR-Basic) (ID: 16603)	02/08/16	5/5 (100%)
Mentoring (RCR-Basic) (ID: 16602)	02/08/16	5/5 (100%)
Using Animal Subjects in Research (RCR-Basic) (ID: 13301)	02/08/16	5/5 (100%)
Conflicts of Interest (RCR-Basic) (ID: 16599)	02/08/16	4/5 (80%)
Collaborative Research (RCR-Basic) (ID: 16598)	02/08/16	5/5 (100%)
Research Involving Human Subjects (RCR-Basic) (ID: 13566)	02/08/16	4/5 (80%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

CITI Program
Email: citisupport@miami.edu
Phone: 305-243-7970
Web: https://www.citiprogram.org

- **Report ID:** 7665484
- **Report Date:** 02/08/2016
- **Current Score**:** 93

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Using Animal Subjects in Research (RCR-Basic) (ID: 13301)	02/08/16	5/5 (100%)
Research Involving Human Subjects (RCR-Basic) (ID: 13566)	02/08/16	4/5 (80%)
Authorship (RCR-Basic) (ID: 16597)	02/08/16	4/5 (80%)
Introduction to the Responsible Conduct of Research Archived 1248 (ID: 1248)	03/21/12	No Quiz
Collaborative Research (RCR-Basic) (ID: 16598)	02/08/16	5/5 (100%)
Conflicts of Interest (RCR-Basic) (ID: 16599)	02/08/16	4/5 (80%)
Data Management (RCR-Basic) (ID: 16600)	02/07/16	5/5 (100%)
Mentoring (RCR-Basic) (ID: 16602)	02/08/16	5/5 (100%)
Peer Review (RCR-Basic) (ID: 16603)	02/08/16	5/5 (100%)
Research Misconduct (RCR-Basic) (ID: 16604)	02/03/16	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

CITI Program
Email: citisupport@miami.edu
Phone: 305-243-7970
Web: https://www.citiprogram.org

APPENDIX G

Demographics

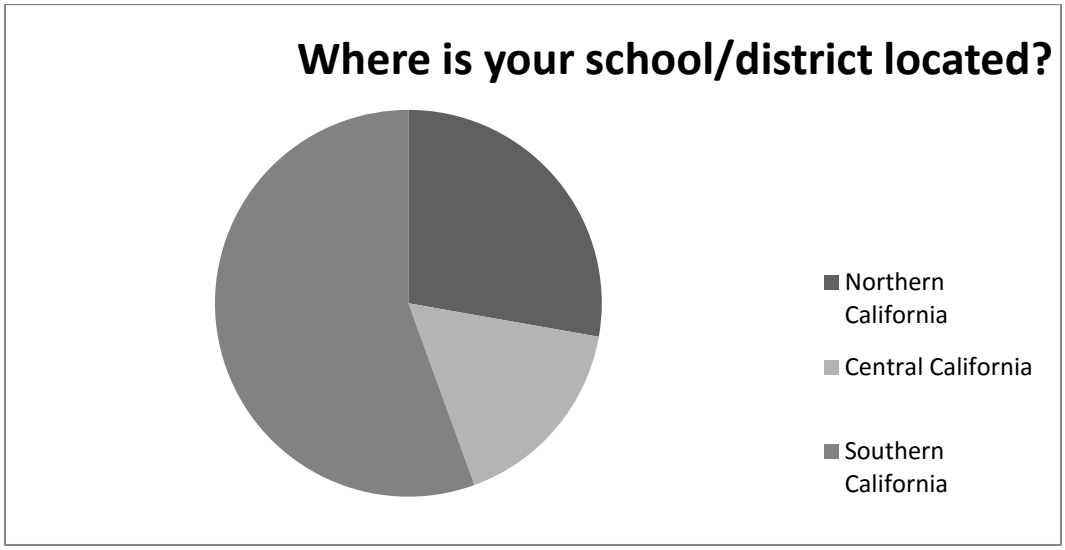


Figure G1. Location of school/district.

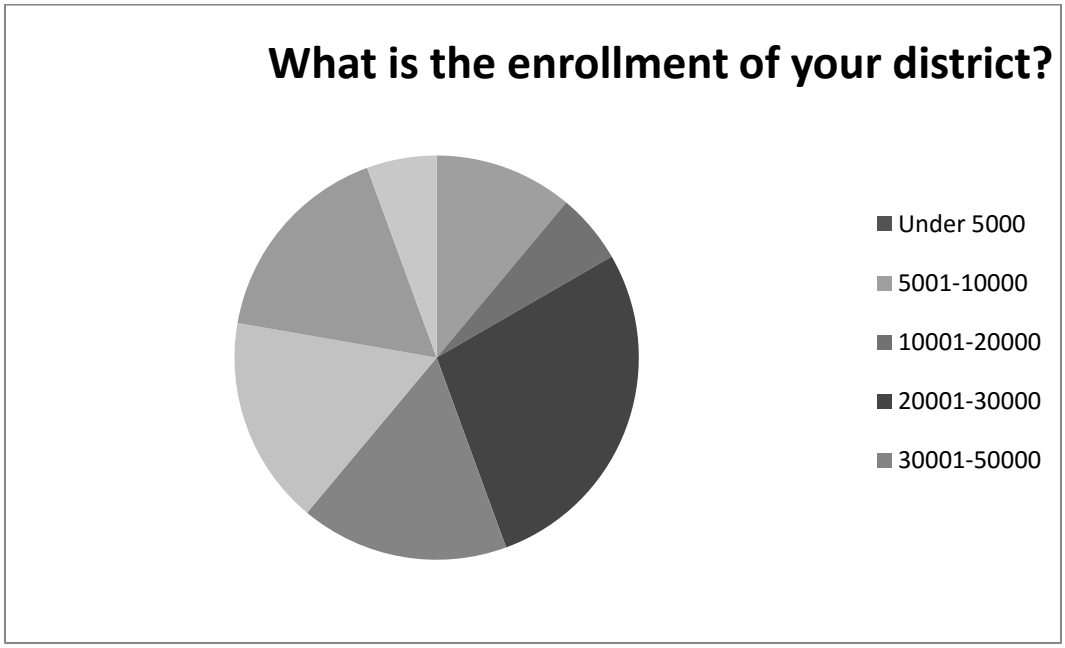


Figure G2. District enrollment.

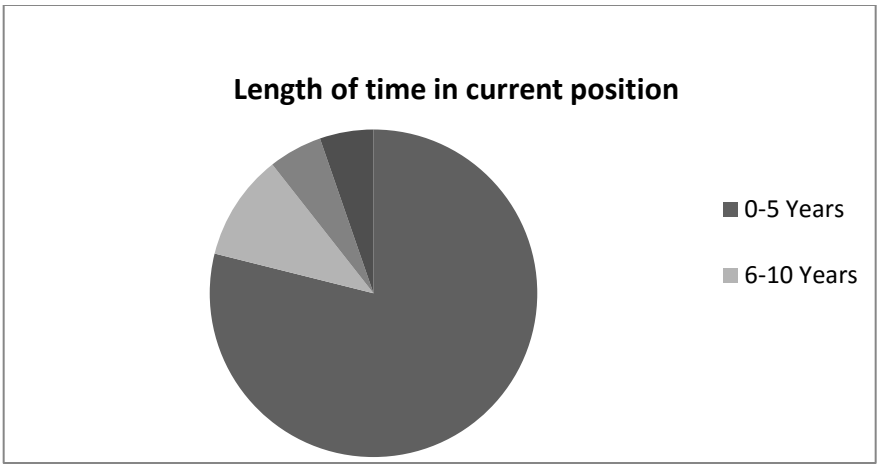


Figure G3. Length of time in current position.

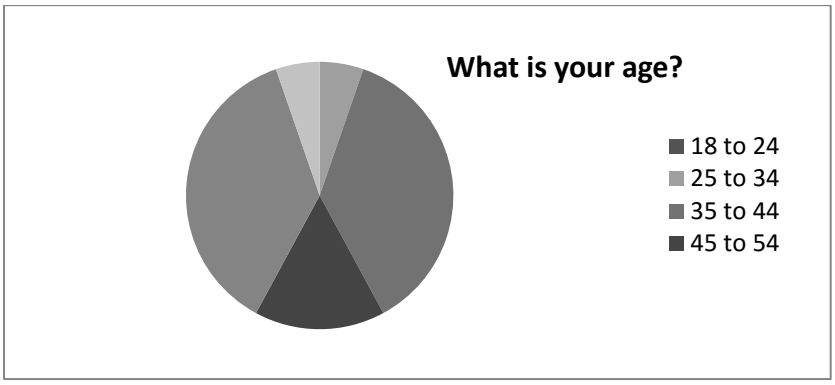


Figure G4. Age of participants.

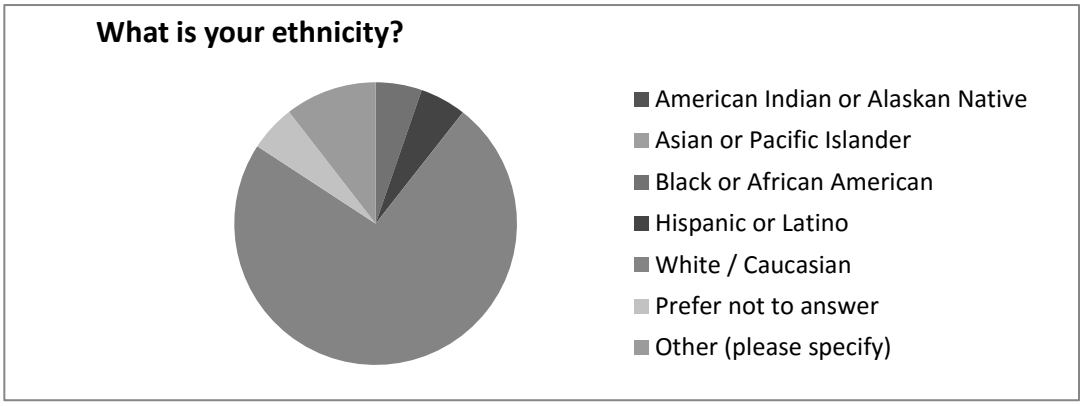
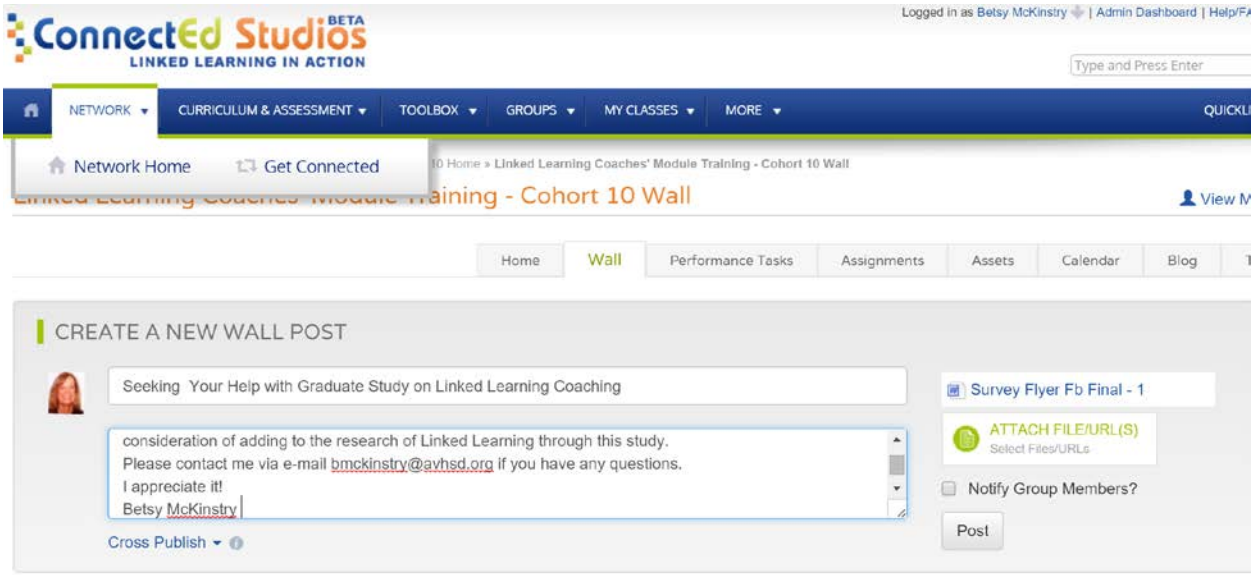


Figure G5. Ethnicity of participants.

APPENDIX H

Recruitment Information



E-Mail Draft

Good afternoon,

I have worked with many of you who have been involved in Linked Learning efforts as a strategy for education reform. I am currently a doctoral student at Pepperdine University and working on my dissertation. My research study involves the coaches training and its' impact on the implementation of Linked Learning. I am seeking information from educators who have completed the Linked Learning coaches training. I am e-mailing you to ask if you would take 15-20 minutes to complete my survey for this study. I would appreciate it if you would also share this e-mail within your Linked Learning network.

This web-based study complies with IRB (Institutional Review Board) guidelines. Your participation is completely voluntary and your answers will be anonymous.

Thank you in advance for your consideration of adding to the research of Linked Learning through this study.

If you are interested, please click on the link for the survey and additional information:

If you have any questions, please do not hesitate to contact me bmckinstry@avhsd.org, 661-917-9167

Thank you for your time.

Do you have 20 minutes to contribute to the research on Linked Learning?

- Looking for participants to complete a web-based survey on the Linked Learning Coaches training
- Research study conducted by a doctoral student at Pepperdine University
- Participants are voluntary and all data will be kept anonymous
- This study will allow for an examination of Linked Learning coaching

If interested, please link to the following webpage:
https://www.surveymonkey.com/r/P8J8QRR

For additional information, contact:
[redacted] or [redacted]

This study has the approval of the following institutions and organizations:

Center for POWERFUL PUBLIC SCHOOLS | A catalyst for equity, access and choice

ConnectEd The California Center for College and Career

PEPPERDINE

APPENDIX I

Survey Comments

Question 5

5th largest school district in the state. 40+ schools.
4/11/2016 9:57 AM View respondent's answers Categorize as... œ

All urban, but greatly stratified by bands of affluence and poverty
4/8/2016 8:28 AM View respondent's answers Categorize as... œ

I work in districts across the state, as a researcher and TA provider
4/8/2016 5:47 AM View respondent's answers Categorize as... œ

I am at the district level, no particular school site assigned.
4/4/2016 1:47 PM View respondent's answers Categorize as... œ

I'm a consultant, so work with many different districts.
3/23/2016 8:24 PM View respondent's answers Categorize as... œ

Question 13

district wide
3/29/2016 11:40 AM View respondent's answers Categorize as... œ

In the process of expanding implementation
3/28/2016 12:01 PM View respondent's answers Categorize as... œ

Question 14

I was directly trained by the coach coordinator - was one of the first LL coaches
4/8/2016 8:28 AM View respondent's answers Categorize as... œ

I worked for 22 years in a non-Linked Learning single high school district in a California Partnership Academy, as a social studies teacher and lead teacher, and participated in the initial coaches training development, as we worked closely with MPR and ConnectEd.
4/8/2016 5:47 AM View respondent's answers Categorize as... œ

Less than 1 year ago
4/4/2016 1:47 PM View respondent's answers Categorize as... œ

Question 15

this is the work of the CTE department also, so my knowledge really is coming from more than LL coaches training
4/11/2016 10:01 AM View respondent's answers Categorize as... œ

I can't say that I learned this from the actual coaches training, rather from being a coach and the PD that we have had here locally.
4/11/2016 8:56 AM View respondent's answers Categorize as... œ

I do all of these things pretty much anyway, not because of the coach training.
4/8/2016 7:05 AM View respondent's answers Categorize as... œ

Training added to my knowledge but was not the sole avenue for my knowledge of Linked Learning
4/4/2016 1:53 PM View respondent's answers Categorize as... œ

Question 16

These are things I have been practicing as a coach for many years before the LL coach training.
4/8/2016 7:05 AM View respondent's answers Categorize as... œ

I use the strategies with my coaches as I am not directly coaching teachers.
4/4/2016 1:53 PM View respondent's answers Categorize as... œ

Question 17

Soem of this was already happening prior to training.
4/11/2016 10:01 AM View respondent's answers Categorize as... œ

I can't say that I learned this from the actual coaches training, rather from being a coach and the PD that we have had here locally.
4/11/2016 8:56 AM View respondent's answers Categorize as... œ

Again, most of this is work I have been doing anyway, irrespective of the coach training.
4/8/2016 7:05 AM View respondent's answers Categorize as... œ

If the question is, Did I learn this in the training? -- much of the above I have sought out myself and it is presently in the process/progressing at this point
3/29/2016 11:24 AM View respondent's answers Categorize as... œ

Question 18

The equity part of our coaches training came WAY off the rails and ruined the remainder of the week for our work. The presenter trained "equity" through the lens of the learners being privileged and being required to pick a color. very offensive
4/11/2016 8:56 AM View respondent's answers Categorize as... œ

Most of these skills were not well developed in the training, and, as in previous questions, I have been doing them anyway, and developing my skills and knowledge, outside of the coach training.
4/8/2016 7:05 AM View respondent's answers Categorize as... œ

Also, in the process.
3/29/2016 11:24 AM View respondent's answers Cat

Question 19

again...I can't say that I learned this from the actual coaches training, rather from being a coach and the PD that we have had here locally.

4/11/2016 8:56 AM View respondent's answers Categorize as... œ

Again, much of this I do already as a coach. The training did not appreciably increase my skill in these areas.

4/8/2016 7:05 AM View respondent's answers Categorize as... œ

In the process.

3/29/2016 11:24 AM View respondent's answers Categorize as... œ

Encourage distributed leadership model, but it is a beginning work in process

3/28/2016 12:05 PM View respondent's answers Categorize as... œ

I presented on Disgtributed Leadership at a Linked Learning conference recently.

3/23/2016 8:27 PM View respondent's answers Categorize as... œ

Question 20

can't say that I learned this from the actual coaches training, rather from being a coach and the PD that we have had here locally.

4/11/2016 8:56 AM View respondent's answers Categorize as... œ

Same here. See previous comments.

4/8/2016 7:05 AM View respondent's answers Categorize as... œ

In the process

3/29/2016 11:24 AM View respondent's answers Categorize a

Question 21

Ditto

4/8/2016 7:05 AM View respondent's answers Categorize as... œ

In the process

3

Question 22: Equity

District commitment, coach reflection on what it means in practice, and the details of everyday work at the sites. National Equity Project work. Coach community of practice. Site recruitment strategies. Data use. Keeping the conversation about equity alive all the time.

4/8/2016 7:05 AM View respondent's answers Categorize as... œ

I don't have a district, but I have seen many effective approaches to addressing equity, in each of the areas of pathway development. Embedding advanced coursework in heterogenous (untracked) classrooms, for example, and balancing student choice with equitable access in pathway placement.

4/8/2016 5:52 AM View respondent's answers Categorize as... œ

At the district level working in our COP team has sparked equity conversations and the sharing of best practices

4/4/2016 1:53 PM View respondent's answers Categorize as... œ

Using data to drive conversations in Communities of Practice.

4/4/2016 1:43 PM View respondent's answers Categorize as... œ

Unsure

3/29/2016 11:24 AM View respondent's answers Categorize as... œ

Awareness events to reach out to under represented student groups

3/28/2016 5:48 PM View respondent's answers Categorize as... œ

Discussion among sites and district regarding making opportunities equally available for all students

3/28/2016 12:05 PM View respondent's answers Categorize as... œ

The district has established a department/team focused on equity and equity is a priority of the district but I don't know much details about that department as it is new. At the site level, the teams I work with have developed a procedure for equitable student recruitment and placement into pathways that has led to the individual pathway demographics being more closely aligned with the school-wide demographics.

3/25/2016 2:31 PM View respondent's answers Categorize as... œ

Leadership coaching, which results in the site's ability to look at data and face reality!

3/23/2016 8:27 PM View respondent's answers Categorize as... œ

Looking at data, examining trends, surveying the students as well as the teachers; keeping the strategies current and relevant for the classroom; promoting the importance of career AND readiness as we encourage teachers in the good work they are doing.